REDACTED VERSION

EXPANDED SITE INSPECTION

SBA SHIPYARD INC.
9040 Castex Landing Road
Jennings, Jefferson Davis Parish, Louisiana

CERCLIS Number: LAD008434185

Prepared in cooperation with the
U.S. Environmental Protection Agency, Region 6

July 24, 2015

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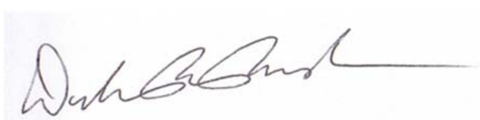
SIGNATURE PAGE

07/24/2015

Paul Moisan
Dynamac START-3 Project Manager

Date



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ABBREVIATIONS AND ACRONYMS

° F	Degrees Fahrenheit
µg/L	Micrograms Per Liter
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Cr	Chromium
ESI	Expanded Site Inspection
EPA	United States Environmental Protection Agency
GAC	Granulated Activated Carbon
GPS	Global Positioning System
HASP	Health and Safety Plan
HRS	Hazard Ranking System
IDW	Investigative Derived Waste
LDEQ	Louisiana Department of Environmental Quality
LEI	Lamp Environmental Industries, Inc.
LTU	Land Treatment Unit
MCL	Maximum Contaminant Level
mg/L	Milligrams Per Liter
msl	Mean Sea Level
MTBE	Methyl Tert-Butyl Ether
MW	Monitor Well
NPL	National Priorities List
NRC	National Response Center
PAHs	Polyaromatic Hydrocarbons
Pb	Lead
PID	Photo-Ionization Detector
PPE	Portable Point of Entry
QASP	Quality Assurance Sampling Plan
QA/QC	Quality assurance/Quality Control

RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAM	Site Assessment Manager
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
scf/m	standard cubic feet per minute
SI	Site Inspection
SVOCs	Semi-volatile Organic Compounds
SWD	Solid Waste Division
START	Superfund Technical Assessment and Response Team
TAL	Target Analyte List
TEQ	Toxic Equivalents
TDD	Technical Directive Document
TDL	Target Distance Limit
TSS	Total Suspended Solids
VOC	Volatile Organic Compound

1 INTRODUCTION

Dynamac Corporation (Dynamac) a Superfund Technical Assessment and Response Team (START-3) contractor was tasked by the U.S. Environmental Protection Agency (EPA), Region 6, under Technical Direction Document (TDD) TO-0009-12-10-02 (Appendices A and M), to conduct an Expanded Site Inspection (ESI) for the SBA Shipyard Inc. site (CERCLIS No. LAD008434185) located at 9040 Castex Landing Road, Jennings, Jefferson Davis Parish, Louisiana (LA). See Figures 1 and 2 for the site location and areas of interest at SBA Shipyard. This ESI is conducted under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of this investigation is to collect information concerning conditions at the SBA Shipyard sufficient to:

- fill data gaps identified in the Site Investigation report, including further characterization of on-site sources, and determination of impacts to on-site groundwater, on-site wetland, and river sediments.
- assess the threat posed to human health and the environment by the site, and determine the potential for a release of hazardous constituents into the environment;
- determine the need for additional investigation under CERCLA or other authority, and, if appropriate, support site evaluation using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL); and
- provide additional documentation necessary to support a decision by the EPA Region 6 Site Assessment Manager (SAM) regarding the need for further action under CERCLA and SARA.

The specific objectives and tasks for the SBA Shipyard ESI, as identified by the EPA SAM, are to:

1) develop a work plan/cost estimate for completing an ESI;
2) develop a Quality Assurance Sampling Plan (QASP);
3) prepare a Health and Safety Plan (HASP);

4) prepare documents for procurement of samples using the Houston EPA Laboratory and ALS Environmental Laboratory;
5) collect and analyze samples from source material at the site and migration pathways;
6) conduct limited survey and sampling of the area surrounding the site in order to verify potential pathway targets and off-site conditions; and
7) prepare an ESI report for the site, including analytical tables comparing concentrations of contaminants with Louisiana RECAP standards and EPA Regional Screening Levels (MSSLs).

To accomplish the objectives, START-3 collected two waste samples to identify source material and contamination at the site, collected one groundwater sample from an on-site monitor well to assess migration of contamination in the groundwater pathway, collected nine sediment core samples in the Mermentau River (two background and seven downstream locations) to assess migration of contamination in the surface water pathway, and collected four wetland sediment samples to assess migration of contamination at the site.

The ESI report was developed according to the EPA Guidance for Performing Site Inspections Under CERCLA (EPA540-R-92-021, Directive 9345.1-05), 40 CFR Part 300, Hazard Ranking System (HRS) Final Rule, the HRS Guidance Manual, and the Superfund Chemical Data Matrix (SCDM) (References 1 to 4).

Completion of the ESI included reviewing existing site information, determining regional characteristics, collecting receptor information within the range of site influence, executing a sampling plan, and producing this report. The report is organized as follows:

- Section 1, Introduction – authority for performance of this work, goals for the project, and summary of the report contents;
- Section 2, Site Background – site description, site operations and waste characteristics, and a summary of investigation locations;
- Section 3, Field Activities and Analytical Protocol – summary of the field effort;
- Section 4, Quality Assurance/Quality Control (QA/QC) – summary of the laboratory data;
- Section 5, Analytical Results Reporting and Background Samples – discussion of results reporting criteria and background sample locations and analytical results;

- Section 6, Potential Sources – discussion of site sources, sample locations, and analytical results;
- Section 7, Migration/Exposure Pathways and Receptors – discussion of the migration/exposure pathways, sample locations, and analytical results;
- Section 8, Summary and Conclusions – summary of the investigation and recommendation for the site based on the information gathered during the investigation;
- Section 9, References – numerical listing of the references cited throughout the text;
- Appendix A TDD TO-0009-12-10-02, Amendment A and Amendments 002 to 009;
- Appendix B Photographic Documentation – photographs taken during the sampling event and site visit;
- Appendix C Copy of Logbook – documenting field activities during the ESI.
- Appendix D Chain-of-Custody Forms – forms documenting sample chain-of-custody for the sampling event;
- Appendix E Global Positioning System (GPS) Coordinates of Sample Locations – latitude and longitude coordinates of sample locations;
- Appendix F Access Agreements – for properties where samples were collected;
- Appendix G EPA Houston Analytical Data – complete analytical results for all sediment samples and groundwater samples;
- Appendix H ALS Environmental Analytical Data – complete analytical results for all waste samples;
- Appendix I Quality Assurance Sampling Plan;
- Appendix J Sampling Data Sheets during the ESI sampling event;
- Appendix K Memorandum to File: Observed Recreational Fishing
- Appendix L Data Quality Assessment
- Appendix M TDD Amendments 010 to 011

2 SITE BACKGROUND

This section describes the background of the site including location, description, ownership history, operations and source characteristics, previous investigations, and a summary of the site investigation locations.

2.1 SITE LOCATION

Site Name:	SBA Shipyard Inc. facility (SBA)
CERCLIS ID No.:	LAD008434185
Location:	9040 Castex Landing Road, Jennings, Jefferson Davis Parish, Louisiana 70546
Latitude (facility entrance):	-30° 9' 50.9394" N
Longitude (facility entrance):	-92° 36' 57.168" W
Legal Description:	Section 19 of Range 2 West, Township 10 South and is located at the end of State Highway 3166 and adjacent to the west bank of the Mermentau River (Reference 5, p. 10)
Congressional District:	Louisiana
Site Owners and Contact:	1. Leevac Shipyard, Inc. P.O. Box 1190 111 Bunge St. Jennings, LA 70546 337-824-2210 (Figure 5, Appendices C and F)
Site Contact and Owner:	2. Louis & Suzanne Smailhall 6430 Buffalo Speedway Houston, TX 77005 713-663-7588

2.2 SITE DESCRIPTION

The SBA Shipyard facility (SBA) is situated on approximately 98 acres of land located in a rural-industrial area, at 9040 Castex Landing Road, Jennings, Jefferson Davis Parish, LA 70546, at the end of State Highway 3166 and adjacent to the west bank of the Mermentau

River (Figure 1). The site is approximately 2.3 miles southwest (downstream) of Mermentau, Louisiana. The facility is bordered to the north by residents, south and west by wetlands, and to the east by the Mermentau River. Access to the property is restricted with fencing and locked gates (Appendix B).

SBA used the site for construction, repair, retrofitting and cleaning of barges since 1965 through 1999. Three barge slips and a dry dock are located off the Mermentau River. The slips were used to dock barges during cleaning or repair. Except for portions of the property possibly used for livestock grazing there is no known industrial use for the site prior to 1965 (Ref. 6, p. 6). Barges serviced by SBA typically held diesel, coal tar, crude oil, gasoline and asphalt.

Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments, a land treatment unit (LTU) and storage tanks. Figure 4 provides a layout of the site features and waste management areas. The wastes from barges consisted of petroleum hydrocarbons. In addition to the hydrocarbons other waste streams on site included asphalt, creosote, styrene, vinyl acetate, carbon tetrachloride, methanol, coal tar, creosote-type black oil, ethyl acrylate, acrylates, corn oil, coal tar distillate, caustic soda, tallow, corn oil, urea-ammonium nitrate and soybean (Ref. 24, pp. 1-3 & 36-39). The wastes were separated from the water into surface impoundments that were known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3 (Ref. 5, p. 26). Water was recycled to barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (a.k.a. surface impoundments) (Ref. 6, p. 6).

START-3 conducted a site reconnaissance inspection at the SBA Shipyard on December 11, 2012. Brenda Cook, EPA Site Assessment Manager (SAM), Mark Miller and Tommy Dolan, LDEQ representatives accompanied START-3 on the inspection. The facility is inactive and abandoned. Access to the property is restricted with fencing and locked gates. It is possible that trespassing may occur from the adjacent river. Sheep and cattle grazing were observed on the property. Tar-like material was observed in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches. Evidence of the former pits and former land treatment unit were not observed during the reconnaissance. Four monitoring wells were present on the western portion of the property. A partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite (Ref. 7, p.11).

START-3 conducted a Site Inspection (SI) at the SBA Shipyard in August 2013. Brenda Cook, EPA Site Assessment Manager (SAM) accompanied START-3 on this inspection. Field operations during the SI included the collection of on-site waste, surface water, on-site sediment, on-site groundwater, and on-site and background subsurface soil samples. PAHs were detected at percent concentrations from the partially buried barge and at levels above EPA MSSLs and LDEQ RECAP levels in soils from old waste impoundments and barge slips (Ref. 23, p. 48).

2.3 SITE OWNERSHIP HISTORY

SBA Shipyards, Inc. site was used for construction, repair and cleaning of barges and other vessels since the mid-1960s. In 1993, SBA Shipyards leased approximately 30 acres of the facility to Leevac Marine. Since that time, Leevac Marine purchased the portion of the facility used for construction and repair of barges and other vessels (Ref. 5, p. 11). Ownership contact information is provided in Section 2.1.

2.4 SITE OPERATIONS AND SOURCE CHARACTERISTICS

During SBA operations, wastes included oil, wax, water, sludge, chlorinated solvents, diesel, crude and gasoline. Wastes were managed in a waste management area that included four impoundments, a land treatment unit (LTU) and storage tanks. Hydrocarbons were separated from the water into surface impoundments known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3 (Ref. 5, p. 26). Water was recycled to barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (a.k.a surface impoundments).

<u>Regulatory History</u>

In 1980, SBA submitted a RCRA Part A Application to EPA indicating that SBA did not treat, store or dispose of hazardous waste. In late 1989, SBA began remediation activities on the four impoundments (Sources 3, 4, 5 and 6) that were in service since 1968. Visual indications of the possible presence of contamination were observed during subsurface investigations conducted

November 1989 – February 1990 by SBA contractors. In addition, four monitor wells were also installed at the time. In 1990, SBA submitted a notification to LDEQ as generator of hazardous waste. Subsurface contamination was observed at the SBA site by LDEQ on February 1990. In August 1990, the LDEQ, Solid Waste Division (SWD) issued an Order (OC-159) to SBA to close the waste management units. A memo was written in July 1994 that either LDEQ HWD or EPA (Ref. 6, pp. 45-49) would handle closure activities for the SBA site. In 1994 the EPA Region 6 RCRA Enforcement Branch assumed the role for regulatory authority for the site and SBA hired a contractor to conduct a RCRA Facility Investigation (RFI). SBA submitted an RFI work plan in 1996 (Ref. 10). In December 2002 EPA issued Order and Agreement for Interim Measures/Removal Action (IM/RA) of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc., pursuant to Resource Conservation Recovery Act (RCRA) Section 3008(h) (Ref. 5, pp. 7 and 9).

2.4.1 **Sources**

Figure 4 provides the approximate layout of the sources located at SBA Shipyard. Sources at SBA Shipyard include the following:

- <u>Source No. 1 - partially buried barge</u>. The barge is approximately 250 feet (ft.) by 50 ft. The steel barge is located on the southeast portion of the property, north of a designated wetland area. Waste oil and fluids from the barge are being released into the aforementioned wetlands (Ref. 7, p. 56-57). An anonymous caller notified the National Response Center (NRC) in October 2012 that the barge was being scrapped and oil was being discharged to the surrounding soils. The material was also allowed to burn (Ref. 8, p. 2). LDEQ conducted an investigation and reported evidence of the scrapping efforts and that the burning of oil was extinguished (Ref. 9, p. 2).

- <u>Source No. 2 - horizontal steel, aboveground storage tank (AST).</u> The tank is located approximately 300 feet northwest of the barge. It allegedly contains approximately 50,000 pounds of solid asphaltic material. No secondary containment features are associated with the AST.

- Source No. 3 - Former Oil Pit (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 6 ft. and contained approximately 3,600 cubic (cu) yards of oily sludge (Ref. 6, p. 8). The oily wastes from the barge cleaning operations was separated from the water and pumped into this surface impoundment. There is no documentation to indicate that this source was lined or had any other containment features when it was in operation.

- Source No. 4 – Former Water Pit 1 (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 15 ft. The estimated volume was 6,900 cubic yards (Ref. 6, p. 8). There is no documentation to indicate this source was lined or had any other containment features when it was in operation.

- Source No. 5 – Former Water Pit 2 (surface impoundment). The dimensions were approximately 85 ft. x 75 ft. x 6 ft. and had an estimated volume of 700 cubic yards (Ref. 6, p. 8). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.

- Source No. 6 - Former Water Pit 3 (surface impoundment). The dimensions were approximately 283 ft. x 55 ft. x 6 ft. and had an estimated volume of 600 cubic yards (Ref. 6, p. 9). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.

- Source No. 7 - Former land treatment unit (LTU). The LTU was located in the western portion of the site (Figure 4). It had dimensions of approximately 190 ft. x 93 ft. x 3 ft. and estimated to contain approximately 2,000 cu yards of solidified sludge (Reference 6, p. 9). The LTU was used to further biotreat stabilized sludge that was removed from Water Pit 1 (Ref. 6, p. 9). Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments and LTU. Approximately one-third of the material was placed in the LTU. The material in the LTU was periodically disked until 1993 to promote bioremediation (Ref. 6, pp. 6-8). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.

- Source No. 8 - Barge Slip. Located off the Mermentau River. No operational or regulatory information is available for this source. It has dimensions of approximately 1700 ft. x 200 ft. (Figure 4).

- Source No. 9 - Dry Dock. Located north of the barge slip. No sampling or other information is known or available about this source. It has dimensions of approximately 500 ft. x 250 ft. (Figure 4).

2.5 PREVIOUS INVESTIGATIONS

Starting in 1989, SBA made attempts to bio-remediate and close the impoundments. In 1991, the bioremediation was determined to be unsuccessful. Water and oil were pumped from Water Pit 1 to the storage tanks. The sludge in Water Pit 1 was solidified with fly-ash and lime. Approximately one-third of the material was placed in the LTU. The remaining material in Water Pit 1 was piled at the east end of Water Pit 1. Accumulated precipitation was periodically pumped from the west end of Water Pit 1 to storage tanks. The material in the LTU was periodically disked until 1993 to promote bioremediation (Ref. 6, pp. 6-7, and 45-49).

Interim removal activities were conducted from March 2001 through January 2005 under an EPA December 2002 Order and Agreement for Interim Measures/Removal Action (IM/RA) of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc., pursuant to Resource Conservation Recovery Act (RCRA) Section 3008(h). Approximately 33.8 million pounds of oils, waxes and sludges, pumpable oily material and oily tank heels, 70 tons of contaminated debris and 88 tons of recyclable scrap steel were removed from the site (Ref. 5, pp. 7 and 9).

As part of the IM/RA, the Oil Pit and wastes from the storage tanks were stabilized and solidified for off-site disposal. Approximately 750,000 gallons of uncontaminated pond water were pumped from the former Water Pit to the drainage ditch that drains to the Mermentau River. The emptied Water Pit was then used to receive treated storm water from the partially buried barge. Pumpable oil materials were removed from the partially buried barge; which was then used to store contaminated storm water prior to treatment and discharge to the emptied Water Pit. Water from the barge was treated by sand filtration, followed by granulated activated carbon (GAC). The treated water was then pumped to the Water Pit 1, analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and Total Suspended Solids (TSS) and discharged (Ref. 5, p. 423). The Water Pit was closed by excavating a six - foot gap in the berm to the “Mermentau River bottomland” directly east of pit (Ref. 5, pp. 7-11). The partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite after the IM/RA activities were conducted (Ref. 6, pp. 44-49).

The IM/RA activities were complete in 2005. LDEQ conducted periodic field investigations of the property since 2005 to document facility conditions (Ref. 5, p.7). Since closure in 2012, tar-like material was observed by EPA and LDEQ in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches (Ref. 10, p. 2).

On December 11, 2012 START-3 and Brenda Cook, EPA Site Assessment Manager (SAM), accompanied by Mark Miller and Tommy Dolan, LDEQ representatives, conducted a site reconnaissance inspection at the SBA Shipyard. Tar-like material was observed in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches. Evidence of the former pits and former land treatment unit were not observed during the reconnaissance. Four monitoring wells were present on the western portion of the property. A partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite (Ref. 7, p.11).

START-3 conducted a Site Inspection (SI) at the SBA Shipyard in August 2013. Brenda Cook, EPA Site Assessment Manager (SAM) accompanied START-3 on this inspection. Field operations during the SI included the collection of on-site waste, surface water, on-site sediment, on-site groundwater, and on-site and background subsurface soil samples. PAHs were detected at percent concentrations from the partially buried barge and at levels above EPA MSSLs and LDEQ RECAP levels in soils from old waste impoundments and barge slips (Ref. 23, pp. 29, 30-31, 33, 70-71).

2.6 SUMMARY OF ESI INVESTIGATION LOCATIONS

START developed a Quality Assurance Sampling Plan (QASP) for the sampling effort conducted at the site as part of the EPA Expanded Site Inspection (ESI) (Appendix I). The

QASP proposed the collection of two (2) waste samples, one sample from the partially buried barge (Source No. 1) and the other from the alkaline storage building identified during the SI, to identify the source material and contamination at the site; collection of one (1) groundwater sample from an on-site monitoring well discovered during the SI but not sampled, to assess migration of contamination in the groundwater pathway; collection of nine (9) river sediment core samples from the Mermentau River (two background and seven locations downstream) to assess migration of contamination in the surface water pathway; collection of three (3) wetland sediment samples to assess migration of contamination at the site in the surface water pathway. Any additional samples or alternative sample locations were selected by the EPA SAM.

An additional wetland sediment sample (sample number SBA-ESI-014) was collected from a location southeast of the proposed wetland sediment samples (Figure 5). In summary, the following samples were collected during the ESI:

- Groundwater samples – 1 locations;
- River sediment samples – 9 locations;
- Wetland sediment samples – 4 locations; and
- Waste sample – 2 locations.

Locations of the samples collected are shown in Figure 5. Appendix J presents the samples, sample numbers and location descriptions. START performed photographic and written documentation of sampling activities (Appendices B and C, respectively).

3 FIELD ACTIVITIES AND ANALYTICAL PROTOCOL

The QASP developed for the ESI describes the sampling strategy, sampling methodology, and analytical program used to investigate potential hazardous substances, sources and potential receptors (Appendix I). With few exceptions, the field activities were conducted in accordance with the approved QASP. Deviations from the QASP are described, when applicable, in this section and in the sampling location discussions in Section 5 (Analytical Results Reporting and Background Samples) and Section 6 (Potential Sources).

The field sampling event was conducted from September 15, 2014 through September 18, 2014. A total of 19 samples, inclusive of 2 background samples (2 river sediment), were collected during the sampling event. Sample types and methods of collection are described below. A list of all samples collected for laboratory analysis during this sampling event is in Appendix J. Photographic documentation of the field activities is included as Appendix B.

Alphanumeric identification numbers applied to each sample (e.g., SBA-ESI-01 = SBA Shipyard – Expanded Site Inspection - sample location 01) are used in the report as sample location identifiers. Sample locations are shown in Figure 5.

This section describes sampling methodology, analytical protocol, global position system measurements, and investigation-derived waste.

3.1 SAMPLING METHODOLOGY

Sampling methods used for each sample type are described below.

3.1.1 **Sediment Sampling**

START collected all but one river sediment core sample in the Mermentau River using a sample retrieval Vibracore. Sediment sample SBA-ESI-09 was collected using a ponar dredge and placed directly into sample containers. All other sediment samples were collected using a Vibracore drilling apparatus mounted on a platform boat that was capable of advancing a 30-ft sample retrieval tube through the water column into the sediment below the Mermentau river bed until refusal was encountered. The sediment sample retrieval tube was then cut approximately 1-ft above sediment collection depth, capped and sealed. The retrieval tube was then brought to water surface were the bottom of the tube was immediately captured with a cap and sealed. River sediment sample retrieval tubes were stored upright on the boat till transferred to shore for sampling. All river sediment core samples were carried to shore for processing into sediment increments and transferred into sample containers using a trowel (Appendix I). Air monitoring was conducted using a MultiRAE device during Vibracore retrieval, and sediment core sampling.

On-site wetland sediment samples were all grab samples. Wetland sediment samples were collected using a metal retrieval pole with a beaker attachment to a depth of 1-6 inched bgs. All grab samples were transferred directly into sample containers.

A total of nine (9) Mermentau River sediment samples and four (4) on-site wetland sediment samples were submitted for analysis, including 2 field duplicate samples of the Mermentau River sediment matrix. Samples were shipped to the U.S. EPA Laboratory in Houston for TCL SVOA analyses (Appendix D & G).

3.1.2 **Groundwater Sampling**

START collected one groundwater sample from the on-site monitoring well south of Source No. 6 and adjacent to the west side of the wetland (Figure 4). This monitoring well was not identified during the EPA/START site reconnaissance on December 2012, and was discovered but not sampled during the August 2013, SI sampling event (Ref. 23, p. 21).

The groundwater sample was collected using a bailer and placed directly into the sample containers (Figures 4 and 5). Prior to sample collection, the monitoring well was purged until the indicator parameters of pH, conductivity, temperature and turbidity stabilized (Appendix J). A duplicate sample was collected for groundwater.

Samples were shipped to the U.S. EPA Laboratory in Houston for analysis for TCL SVOA constituents (Appendix D &G).

3.1.3 **Waste Sampling**

START collected two (2) waste samples during the ESI. START collected one waste sample from the partially buried barge identified as Source No. 1 and the other sample from the previously identified alkaline storage building, using stainless steel spoons and directly placing into the sample jars (Appendix I; Figures 3 to 5).

Samples were shipped to ALS Environmental in Houston for analysis for Dioxin/Furan analyses (Appendix D &G).

3.2 ANALYTICAL PROTOCOL

Samples were processed and shipped to the U.S. EPA Laboratory in Houston on September 17 through 18, 2014 and to ALS Environmental in Houston on September 18, 2014.

Analyses conducted on each of the samples collected during the ESI are presented in Tables 1, 2, 4, and 5. Analytical methodology is also presented in Appendices G, H and L. The following analysis was conducted:

- TCL SVOA by EPA CLP OLM04.2 – GC/MS: 13 - sediment samples (4 wetland sediment samples and 9 river sediment samples), 1 - groundwater sample, including QA/QC samples.
- Dioxin/Furan by EPA Method 8290 and 8290A: 2 – waste samples.

3.3 GLOBAL POSITIONING SYSTEM

Trimble GeoExplorer3 GPS units were used to obtain coordinates for each of the sample locations. Data was processed and corrected utilizing Trimble Pathfinder Office Version 4.10 software. The GPS units utilized the WGS1984 coordinate system. After correction using the Pathfinder Office software, the accuracy of the individual sample points ranged from 0.9 to 2.2 meters. Coordinates of the sampling points are included in Appendix E.

3.4 INVESTIGATION-DERIVED WASTE

Investigation-Derived Waste (IDW) generated during the ESI consists of solids and liquids. Solid IDW consisted of used dedicated equipment, sediment cuttings from sediment sampling, and paper waste. All waste was double bagged, sealed in a 55-gal steel drum and labeled. Non-dedicated sampling equipment, such as the ponar dredge, was decontaminated prior to use and after use generating both solid and liquid waste. IDW generated from decontamination procedures was sealed in a 55-gal steel drum and labeled.

4 QUALITY ASSURANCE/QUALITY CONTROL

QA/QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware, and reagents. Specific QC requirements for laboratory analyses are incorporated in the *USEPA Contract Laboratory Program Statement of Work for Inorganics Analyses, Multi-Media, Multi-Concentration*. These QC requirements, or equivalent requirements, were followed for analytical work on the SBA Shipyard ESI.

Analyses were performed by U.S. EPA Laboratory and ALS Environmental, both located in Houston, TX. All data from analyses performed at the U.S. EPA Laboratory were reviewed and validated by the Houston EPA Laboratory. START conducted a validation review of the data and completed a validation report (Appendices G and L). Data qualifiers were applied as necessary according to the following EPA guidance:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*.

When necessary, laboratory- and method-specific QC criteria were applied to the data.

All data from dioxin analyses performed at ALS Environmental were reviewed and validated by the ALS Environmental laboratory. START conducted a validation review of the data and completed a validation report (Appendices H and L). Data qualifiers were applied as necessary according to the following guidance:

- *USEPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review.*

When necessary, laboratory- and method-specific QC criteria were applied to the data.

4.1 SATISFACTION OF DATA QUALITY OBJECTIVES

The following EPA guidance document was used to establish data quality objectives (DQOs) for this ESI:

- *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071.

The EPA Site Assessment Manager determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during fieldwork produced sufficient data that meet the DQOs stated in the START designed SBA Shipyard QASP (Appendix I).

4.2 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Trip blanks are not required and were not collected for TCL SVOA analyses. QC samples included blind duplicate and matrix spike (MS)/matrix spike duplicate (MSD) samples. Blind duplicate samples were collected at a frequency of one in ten samples per matrix (3 total). MS/MSD samples were collected at a frequency of one in every twenty samples per matrix (2 total). These QC samples were analyzed for TCL SVOA.

5 ANALYTICAL RESULTS REPORTING AND BACKGROUND SAMPLES

This section describes the reporting and methods applied to analytical results presented in Sections 6 (Sources) and 7 (Receptors) of this report, and discusses background locations and sample results. Appendix J lists all samples collected for laboratory analysis.

5.1 ANALYTICAL RESULTS EVALUATION CRITERIA

For the purposes of this investigation, significant/elevated concentrations are those concentrations that are:

- Equal to or greater than the sample's Contract Required Quantitation Limit (CRQL) or the Sample Quantitation Limit (SQL) when a non-CLP laboratory was used; and
- Equal to or greater than the background sample's CRQL or SQL when the background concentration was below detection limits; or
- At least three times greater than the background concentration when the background concentration equals or exceeds the detection limits.

Analytical results presented in the analytical summary tables show all analytes/compounds detected above laboratory detection limits in bold type. Analytical results indicating significant/elevated concentrations of contaminants in source samples (Section 6) and target samples (Section 7) with respect to background concentrations are shown boxed and bold type. In addition, detected concentrations will be compared to Louisiana Risk Evaluation/Corrective Action Program (RECAP) standards and /or EPA Media Specific-Screening Levels (MSSLs). Constituents detected above a RECAP or MSSLs will be highlighted in yellow in the tables as applicable.

The analytical summary tables in Appendix G and H present all detected analytes/compounds, but only those detected analytes/compounds at potential sources and Receptors meeting the significant/elevated concentration criteria are discussed in the report text. When samples were diluted for re-analysis at a laboratory, the dilution results were considered for evaluation and are provided in the tables.

5.2 BACKGROUND SAMPLES

Background sediment samples were collected up gradient from SBA Shipyard from the Mermentau River.

5.2.1 **Background River Sediment Samples**

5.2.1.1 Sample Locations

Two (2) off-site background river sediment samples were collected from the Mermentau River upstream of the site at SBA-ESI-01 and SBA-ESI-02, which are approximately 500 – 600 feet north from the shoreline of the site (Figures 4 and 5). Sample location SBA-ESI-01 is located upstream and along the main/shipping channel of the Mermentau River, and SBA-ESI-02 is located upstream and along the original river channel. The GPS coordinate for location SBA-ESI-01 is 30.16566767^{o} north latitude, -92.61016479^{o} west longitude and SBA-ESI-02 is 30.16576993^{o} north latitude, -92.61489526^{o} west longitude (Appendix E).

5.2.1.2 Sample Results

No semi-volatile organics analytes were detected above reporting limits in either background sample SBA-ESI-01SD or SBA-ESI-02SD. Complete analytical results are included in Appendices G and L.

6 POTENTIAL SOURCES

This section describes potential sources, sample locations, and analytical results of SBA Shipyard samples obtained from potential sources. Laboratory data sheets of analytical results for all samples are provided in Appendices G, H and L. Analytical results are summarized in Tables 1, 2, 4, and 5. GPS locations for all samples are listed in Appendix F.

6.1 SOURCE – Partially Buried Barge

Source No. 1 is a partially dismantled buried barge open to the environment. The barge is approximately 250 ft. by 50 ft. The steel barge is located on the southeast portion of the property, north of a designated wetland area (Figures 4). Waste oil and liquids from the barge are being released into the wetlands (Ref. 7, p. 51, and Figure 3).

6.1.1 **Sample Locations**

During the ESI, one (1) waste sample was collected at location SBA-ESI-15 (Figure 5). Sample SBA-ESI-015 was collected on the northwestern edge of the partially buried barge. The material in the partially buried barge has caught fire in the past during demolition (Ref. 8). The sample color was black and was characterized as hard and oily, as seen in the photographs presented in Appendix B. A strong hydrocarbon odor was present during the ESI sampling event.

6.1.2 **Sample Results**

Waste Sample SBA-ESI-015 was analyzed for dioxins/furans (Appendix H). Analytical results are summarized in Table 3.

Dioxin/furans analysis detected elevated levels of Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs). Those with some of the highest TEQs include: 2,3,4,7,8-Pentacholordibenzofuran (PeCDF) at 14.0 TEQ, 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) at 5.21TEQ, 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) at 3.22 TEQ, 1,2,3,4,7,8-Hexacholordibenzofuran (HxCDF) at 2.66 TEQ and 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) at 2.62 TEQ. Table 3 provides a complete list of dioxin/furans detected in this sample.

Octachlorodibenzo-p-dioxin (OCDD) at 1370 ng/kg was found to be two times greater than LDEQ screening standard for 2,3,7,8-TCDD (Total TEQ) of 664 ng/kg.

6.2 SOURCE - Stained Soil

An area of stained soil was observed during the ESI near the Alkyne Storage Tank Building. One (1) sample (SBA-ESI-14) was collected of the black stained soil. See Appendix B for photographs of the stained area.

6.2.1 Sample Locations

Sample SBA-ESI-14 was collected near the Alkyne Storage Tank building from the southeast corner near the old boiler (Figure 5; Appendix J).

6.2.2 Sample Results

Dioxin/furans analysis of the soil detected elevated levels of Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs). Those with some of the highest TEQs include: 1,2,3,7,8-Pentacholorodibenzo-p-dioxin (PeCDD) at 1.66 TEQ, 2,3,4,7,8-Pentacholorodibnezofuran (PeCDF) at 1.21 TEQ, 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) at 0.834 TEQ, 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) at 0.504 TEQ and 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) at 0.376 TEQ. Table 3 provides a complete list of dioxin/furans detected in this sample.

No dioxin/furans analytes were detected above LDEQ screening standard for 2,3,7,8-TCDD (Total TEQ).

7 MIGRATION/EXPOSURE PATHWAYS AND RECEPTORS

The following subsections describe migration pathways and potential receptors within the site's range of influence. This section discusses the groundwater migration pathway, the surface water migration pathway, the soil exposure pathway, and the air migration pathways.

7.1 GROUNDWATER MIGRATION PATHWAY

The target distance limit (TDL) for the groundwater migration pathway is a 4-mile radius that extends from the sources at the site. Figure 6 depicts the groundwater 4-mile TDL.

7.1.1 Geologic Setting

Regional Geology

Regional surface exposures in Jefferson Davis Parish consist of mainly Prairie terraces. The associated surface covers about 84% of this area and consists of clay or mud, silt, sand, and gravel (Ref. 13, p. 2). Alluvium, consisting of clay or mud, sand and gravel make up about 14% of this Parish; while Chenier Plain, Fresh Marsh, and Intermediate Terraces make up the remaining geologic units in this region. The soils in marshes are soft organic soils or firm, clayey mineral soils (Ref. 14, p. 12).

The average annual total precipitation for Jennings, LA is approximately 56 inches (Ref. 15, p.2).

Site-Specific Geology

Four monitoring wells were installed at SBA in 1989. The reported depths range from 26.9 feet bgs to 30 ft. bgs. They are screened from 15 to 25 ft. bgs (Ref. 6, p. 17). Silty clays and clays containing discontinuous lenses, pockets, and layers of silt or fine sand were encountered during well installation (Ref. 6, pp. 11, 69). The permeability of the units encountered ranged from 1.23×10^{-9} centimeters per second (cm/sec) at a 14-16 ft. bgs interval to 4.52×10^{-9} cm/sec at a 28-30 ft. bgs interval (Ref. 6, p. 15). The wells were installed to monitor the groundwater in the vicinity of the impoundments. They were periodically sampled and analyzed for VOCs and SVOCs. The analytical data in the LDEQ files show that the groundwater in the shallow water bearing unit was contaminated with VOCs and SVOCs (Ref. 6, pp. 23, 24). According to the available documentation, none of the nearby private water wells have been analyzed for VOCs or SVOCs.

A fifth monitor well was discovered by EPA/START during the last day of SI sampling event on August 22, 2013. The monitor well was located along the wetland and south of Source No. 6 (Figure 4; Appendix B). The monitor well was not sampled during the SI.

7.1.2 **Aquifer System**

Jefferson Davis Parish, LA is located within the Gulf Coastal Plain, which is composed of sediment deposits of recent age laid down in the Gulf of Mexico and in the valleys of streams. The deposits generally consist of fine sand, silt, clay and a few lenses of coarse sand. Limited use aquifers are located in sand zones within these deposits. The Pleistocene deposits which underlie the recent deposits were laid down during glacial retreats. The system of aquifers formed by the Pleistocene deposits has been named the Chicot Aquifer. The aquifer consists of thick deposits of gravel, sand and clay. The material generally becomes coarser with depth. The sediments forming this plain, slope gently towards the Gulf of Mexico (Ref. 16, pp. 15-18). Groundwater provides fifty-five percent of the water withdrawn and used in Jefferson Davis Parish and is pumped from the Chicot Aquifer System. Of this water withdrawn, 97 percent is mainly used for irrigation, mostly rice; 2 percent for public supply; 0.5 percent for rural uses; and about 0.5 percent for industry (Ref. 14, p. 10). Chicot Aquifer System is the major aquifer system in Jefferson Davis Parish and consists of the upper sand and the lower sand units. The water from the upper sand unit in this system is recharged from the rainfall in Allen Parish. The upper sand unit is where most of the water is withdrawn and are generally of good quality, while the remaining aquifers in the Parish contain salt water. The upper sand unit averages 300 to 400 feet in thickness in sand. From north to south in the Parish, the sand and clay beds thicken. Jefferson Davis Parish has about 500 large producing wells, where irrigation wells are between 300 to 400 feet deep. Household aquifers are only drilled to the top of the aquifer (Ref. 14, p.11).

7.1.3 **Drinking Water Receptors**

Domestic Drinking Water Receptors

According to the Louisiana Department of Natural Resources (LDNR) water well database, there are eight (8) domestic wells within the ¼-mile radius, seven (7) domestic wells located within the ¼ to ½-mile TDL, and six (6) wells within the ½ to 1-mile TDL of the facility (Ref. 7, p. 30). The wells range from 125 to 200 ft. bgs. The average population per household in Jefferson Davis Parish is 2.62 (Reference 17, p. 2-3). During the SI sampling events, it was verified by the residents that the wells within the ¼-mile radius were inactive and drinking water was supplied by the municipal system (Ref. 12, p. 2).

Municipal Drinking Water Receptors

The town of Mermentau, LA has two municipal supply wells located within the 2 to 3-mile TDL. They are 158 ft. and 230 ft. bgs. The population of Mermentau is 661. Attempts were made to contact personnel in the Mermentau Water Department to ascertain if both wells are equally used; however, the attempts of communication were unsuccessful. It will be assumed that both wells are equally used; therefore, the population served by each well is 330.

The estimated population served by the wells for each distance TDL is summarized in Table 5.

7.1.4 **Sample Locations and Results**

On-site monitor wells

START collected groundwater from one (1) existing on-site monitor well discovered during the last day of the SI sampling event, but not sampled during the SI. The existing on-site monitor well is west of the designated wetlands and located south of Source No. 6. Figure 4 shows the location of the monitor well sampled and Figure 5 shows the groundwater sample number associated with this monitor well, SBA-ESI-13MW

No semi-volatile organic analytes were detected above reporting limits in sample SBA-ESI-13MW (Table 4).

Domestic Wells

No domestic wells were sampled during the ESI. It was verified by the residents during the SI sampling event that the domestic wells within the ¼-mile radius were inactive and drinking water was supplied by the municipal system (Ref. 12, p. 2).

7.2 SURFACE WATER MIGRATION PATHWAY

The surface water migration pathway TDL begins at the probable point to entry (PPE) of surface water runoff from the site to a surface water body and extends downstream for 15 miles. Figure 7 depicts the surface water 15-mile TDL.

The Surface Water Migration Pathway, overland/flood migration component assesses the potential for suspected contamination in perennial surface water bodies identified as part of the 15-mile downstream TDL. Identified perennial surface water bodies include streams, rivers, lakes, coastal tidal waters and oceans. The pathway takes into account such factors as distance to the overland flow segment, the nearest surface water body, flood frequencies, drainage area, surface soil type(s), the 2-year, 24-hour rainfall, the size of the source(s) being evaluated, the chemical constituents associated with the sources, and the associated surface water receptors identified within the 15-mile downstream TDL. Surface Water Migration Pathway receptors include the location of the nearest drinking water intakes and associated populations (Drinking Water Threat), fisheries and the consumption of aquatic human food chain organisms (Human Food Chain Threat), and sensitive environments (Environmental Threat) (Ref. 1-3).

7.2.1 **Overland Route**

Surface Water Characteristics

The two-year, 24-hour rainfall for the area of the site is approximately 5.0 to 5.5 inches (Ref. 18, p. 3). The site is located in a 100-year floodplain (Ref. 19, p. 2-3).

There are numerous probable point of entry (PPE) along the Mermentau River due to the location and number of the sources (slips and docks) in proximity to the river (Figure 3). LDEQ has also reported that contents from the partially buried barge have discharged into the wetlands (Ref. 9) (Ref. 7, pp. 56-57).

Mermentau River flows for approximately 6.63 miles until it enters Lake Arthur. The remainder of the 15-mile surface water pathway is located in Lake Arthur (Figure 7).

According to the US Department of Agriculture (USDA), Web Soil Survey, three major soil classification types exist at the site (Ref. 20, p. 2). The three major soil classification types are Acadia silt loam (AcB), Barbary mucky clay (BBA) and Crowley-Vidrine silt loams (CrA). The soil comprising and present on the west side of SBA Shipyard is CrA. Slope characteristic of the CrA soil is 0 to 1 percent and it is poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is 0 to 18 inches for Crowley silt loam and 12 to 24 inches for Vidrine silts loam. The available water capacity characteristic is very high (about 12.6 inches for Crowley and 11.8 inches for Vidrine). The typical Crowley silt loam profile is 0-17 inches: silt loam; 17 to 73 inches: silty clay, while the typical Vidrine silt loam profile is 0 to 14 inches: silt loam; 14-70 inches: silty clay loam.

The soil present in the northern and middle portion of SBA Shipyard is AcB. Slope characteristic of the soil is 1 to 3 percent and is somewhat poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is about 6 to 18 inches, and the available water capacity characteristic is high (about 10.6 inches). The typical Acadia silt loam profile is 0-6 inches: silt loam; 6 to 14 inches: silty clay loam; and 14 to 80 inches: silt clay.

The soil comprising the eastern portions, and adjacent to the west bank of Mermentau River, of SBA Shipyard is BBA. Slope characteristic of the soil is 0 to 1 percent and is very poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is about 0 inches, and the available water capacity characteristic is high (about 11.4 inches). The typical BBA profile is 0 to 10 inches: mucky clay; and 10 to 60 inches: clay.

7.2.1.1 Sample Locations and Results

START collected nine river sediment samples from the Mermentau River. River sediment samples were collected from two background locations away from facility impacts (Figure 5; Table 1) and along the SBA property border to the river near probably points of entry and down gradient from the site.

Background river sediment sample SBA-ESI-01SD and SBA-ESI-02SD were collected upstream on the Mermentau River north of the facility. No semi-volatile organic compounds were detected in either background river sediment samples.

The northern most sediments sample from the Mermentau River collected adjacent to SBA is Sample SBA-ESI-03SD. It is located on the west side of the river in an area likely to receive sediment build up (Figure 5). Analysis of sample SBA-ESI-03SD did not detect any semi-volatile organics above reporting levels (Table 1).

Sample SBA-ESI-04SD was collected down gradient of Source 9 the Dry Dock (Figure 5). Results are summarized in Table 1. Analysis of sample SBA-ESI-04SD detected PAHs such as: chrysene, fluoranthene, fluorene, phenanthrene, and pyrene above analytical reporting limits, but not in concentrations above the RECAP and EPA MSSL screening levels for industrial soils. These constituents are consistent with those detected in buried impoundments used in the barge cleaning operations and the Barge Slip, Dry Dock and Partially Buried Barge (Sources 8, 9, and 1 respectively sampled during the SI (Ref. 23, pp. 29, 33, 34, 57, 70).

Two sediment samples were collected from within the barge slip (Source 8). During the ESI local residents were observed fishing in the barge slip (Appendices B, C and K).
The following samples were collected:

- SBA-ESI-05SD – collected in the western section of the barge slip.
- SBA-ESI-06SD – collected in the eastern section of the barge slip.

Analysis of the sediments from the barge slip detected numerous PAHs in samples SBA-ESI-05SD and SBA-ESI-06SD such as: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene and pyrene. Two PAHs benzo(a)anthracene and benzo(a)pyrene were detected in concentrations above the RECAP and EPA MSSL screening levels for industrial soils. Results are summarized in Table 1. The constituents detected are the same as those detected in the waste sample collected during the SI from the Partially Buried Barge (SBA-40) used in the barge cleaning process (Ref. 23, pp. 29, 57).

Sample SBA-ESI-07SD was collected down gradient from Source 8 from the Mermentau River.

Analysis of sample SBA-ESI-07SD did not detect any semi-volatile organics above reporting levels (Table 1).

Down gradient river sediment samples were collected from two locations: SBA-ESI-08 and SBA-ESI-09. No constituents associated with on-site sources were detected in either river sediment sample collected from the Mermentau River. SBA-ESI-08SD was collected along the west bank of the Mermentau River along the wetland boundary in an area subject to sediment build up (Figure 4). Sediment sample SBA-ESI-09SD was collected along the east bank of the Mermentau River along the wetland boundary.

7.2.2 **Drinking Water Receptors**

Surface water is not used as a public supply in Jefferson Davis Parish (Reference 14). Drinking water is obtained from either municipal or domestic water wells screened in the Chicot Aquifers (Ref. 14, p. 11). Surface water resource usage occurs within Jefferson Davis Parish, primarily for rice farming (Ref. 14, p.4). It is assumed that water from the 15-mile TDL of the Mermentau River is used as a resource.

7.2.2.1 Sample Locations and Results

No samples were collected from drinking water receptors.

7.2.3 **Human Food chain Receptors**

Fishing is common on the Mermentau River, and recreational fishing is likely to exist (Ref. 21, p. 2). While collecting river sediment samples recreational fishermen were observed in Source No. 8 (Barge Slip) and along the river channel adjacent to the facility (Appendices B, C and K). The information of the pounds of human food chain organisms caught for consumption is not known, however, it is assumed that at least 1 pound or more are consumed annually within the 15-mile TDL.

7.2.3.1 Sample Locations and Results

Two sediment samples were collected from within the barge slip (Source 8). During the ESI local residents were observed fishing in the barge slip (Appendices B, C and K).
The following samples were collected:

- SBA-ESI-05SD – collected in the western section of the barge slip.
- SBA-ESI-06SD – collected in the eastern section of the barge slip.

Analysis of the sediments from the barge slip detected numerous PAHs in samples SBA-ESI-05SD and SBA-ESI-06SD such as: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene and pyrene. Two PAHs benzo(a)anthracene and benzo(a)pyrene were detected in concentrations above the RECAP and EPA MSSL screening levels for industrial soils. Results are summarized in Table 1. The constituents detected are the same as those detected in the waste sample collected during the SI from the Partially Buried Barge (SBA-40) used in the barge cleaning process (Ref. 23, pp. 29, 70-71).

7.2.4 **Environmental Receptors**

According to the Louisiana Department of Wildlife and Fisheries, there are two (2) species of birds (red-cockaded woodpecker – *Picoides boreakus* and bald eagle –*Haliaeetus leucocephalus*) and one (1) species of mammal (red wolf – *Canis rufus*) that are either federally or state-designated endangered or threatened species in Jefferson Davis and Acadia Parishes (Ref. 21, p. 2-4). The location of the critical habitats for these designated endangered or threatened species has not been obtained.

Wetlands are present along the Mermentau River within the TDL. The estimated wetland frontage is 30 miles (Ref. 7, p. 31).

7.2.4.1 Sample Locations and Results

Four samples were collected from the wetlands located south of the facility operations (Table 2). Wetland sediment samples were all grab samples collected using a metal retrieval pole with a beaker attachment, and transferred directly into sample containers. (Figures 4 & 6, Appendices H and J). The following samples were collected:

- SBA-ESI-10SD – collected southeast of former Source No.6 (former Water Pit 3) in wetland; noticeable hydrocarbon odor; contained a sizeable amount of organic debris (Table 2).
- SBA-ESI-11SD – collected northeast of former Source No.6 (former Water Pit 3) in wetland; noticeable hydrocarbon odor; hydrocarbon sheen observed on surface of water (Table 2).
- SBA-ESI-12SD – collected southeast of former Source No.6 (former Water Pit 3) in wetland adjacent to on-site drainage ditch; noticeable decaying organic material odor (Table 2).
- SBA-ESI-16SD – collected southeast of former Source No.6 (former Water Pit 3) in wetland near the river boundary (Table 2).

PAHs were detected in samples SBA-ESI-10SD and SBA-ESI-11SD. PAHs such as benzo(a)anthracene (664,000 ppb), benzo(a)pyrene (507,000 ppb), benzo(b)fluoranthene (484,000 ppb), benzo(k)fluoranthene (495,000 ppb), chrysene (822,000 ppb), dibenz(a,h)anthracene (61,900 ppb), dibenzofuran (157,000), and indeno(1,2,3-cd) pyrene (167,000 ppb) exceed either the RECAP values, MSSLs, or both. This is consistent with constituents detected in buried impoundments used in the barge cleaning operations and the Barge Slip, Dry Dock and Partially Buried Barge (Sources 8, 9, and 1 respectively sampled during the SI (Ref. 23, pp. 29, 33, 34, 57, 70).

7.3 SOIL EXPOSURE PATHWAY

The soil exposure pathway is evaluated based on the threat to resident and nearby populations from soil contamination within the first two feet of the surface.

7.3.1 Site Setting and Exposed Sources

The Soil Exposure Pathway assesses the threat to human health and the environment by direct exposure to hazardous substances and areas of suspected contamination. This pathway takes into account potential contact with in-place hazardous substances at a site, rather than the migration of substances from the site (Ref. 1). The following subsections will describe the various details associated with this pathway.

Likelihood of exposure is concerned with areas of suspected contamination and is not limited to soil, but any sources, areas of contamination or other material on the surface that can be considered as areas of suspected contamination.

SBA encompasses approximately 98 acres of property. During IM/RA activities, fill material was acquired onsite from unaffected areas southwest of the former Oil Pit. Additionally, clean fill soil and roadbed gravel was imported from offsite to use in areas that were excavated.

The soil and waste samples collected from the sources during the SI show that contamination, primarily from PAHs, is present within 0 to 3 feet from the surface. Some of the concentrations exceed the RECAP values and MSSLs.

7.3.2 **Receptors**

There are no receptors within 200 ft. from SBA Shipyard. Asphaltic material was deposited throughout the site, during the IM/RA activities. The material was visible during the site reconnaissance (Ref. 7, p. 51). The property is currently being used for livestock grazing (Ref. 7, p. 8). The nearest resident is located approximately 0.3 miles northwest of the former LTU area. Residential communities are located north of the site. Census data indicate that no persons reside within the 0.25-mile radius, 4 people are located within the 0.25 to 0.50 mile radius, and 16 people are located within the 0.50 to 1.0-mile radius (Ref. 22, p. 2).

7.3.2.1 Sample Locations and Results

Stained soil sample SBA-ESI-014 was collected in the southeastern corner of the alkyne storage tank building near the old boiler. The sample color is black and characterized as a waste release.

Dioxin/furans analysis of the stained soil detected elevated levels of Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) none exceeded the LA Screening level for industrial soil 2,3,7,8-TCDD (Total TEQ) of 644 ng/kg . Those with some of the highest

TEQs include: 1,2,3,7,8-Pentacholorodibenzo-p-dioxin (PeCDD) at 1.66 TEQ, 2,3,4,7,8-Pentacholorodibnezofuran (PeCDF) at 1.21 TEQ, 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) at 0.834 TEQ, 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) at 0.504 TEQ and 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) at 0.376 TEQ. Table 3 provides a complete list of dioxin/furans detected in this sample.

7.4 AIR MIGRATION PATHWAY

The air migration pathway TDL is a 4-mile radius that extends from sources at the site (Figure 6).

7.4.1 **Human Receptors**

The nearest resident is located approximately 0.3 miles northwest of the former LTU area. Residential communities are located north of the site. Census data indicate that 0 persons reside within the 0.25-mile radius, 4 people within the 0.25- to 0.50-mile radius, 16 people within the 0.50- to 1.0-mile radius, 77 people between the 1- to 2- mile radius, 1,139 people between the 2- to 3-mile radius, and 1,803 people between the 3- to 4-mile radius of the site (Ref. 22, p. 2).

Significant wetland acreage is located within the 4-mile TDL for the air migration pathway (Figure 7).

7.4.2 **Environmental Receptors**

Air monitoring was conducted during the first week of stabilization and solidification of the former Oil Pit during the IM/RA activities. Water sprays, traffic speed control measures, tarpaulin covers, windscreens and temporary work stoppages were all used to minimize the emission of dust during IM/RA activities. The facility is inactive and abandoned. It is not currently known if a release of material attributable to the facility can be documented. The impoundments and LTU were closed in 1989. There is no cover on the abandoned barge. Odors were noticed from the buried barge during the site reconnaissance. Areas of exposed soil and tar mats were observed during the site reconnaissance. Grasses and vegetation cover approximately 70% of the property.

7.4.3 **Sample Locations and Results**

No air samples were collected during the ESI.

8 SUMMARY AND CONCLUSIONS

SBA is situated on approximately 98 acres of land located in a rural-industrial area in Jennings, Jefferson Davis Parish, LA. SBA used the site for construction, repair, retrofitting and cleaning of barges since 1965. Barges serviced by SBA typically held diesel, coal tar, crude oil, gasoline and asphalt.

Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments, a LTU, and storage tanks. The wastes from barges consisted of petroleum hydrocarbons. The hydrocarbons were separated from the water into surface impoundments that were known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3. Water was recycled for barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (aka surface impoundments).

During September 2014, START-3 collected river sediment samples at nine (9) locations to identify and assess migration of contamination in the surface water pathway, collected groundwater at one (1) on-site location to assess migration of contamination to the groundwater pathway, collected two (2) waste samples to identify the source material and contamination at the site, and four (4) wetland sediment samples to assess migration of contamination at the site in the surface water pathway.

Sediment and groundwater samples were sent to the EPA laboratory in Houston, TX for TCL SVOAs analyses by EPA CLP SOW SOM01.2. Waste samples were sent to ALS Environmental laboratory in Houston, TX for Dioxin/Furans analyses by EPA Method 8290 and 8290A.

8.1 SOURCES

Sources on site consist of a partially buried barge and a stained soil area leaking from the Alkyne storage tank building. The sources contain numerous chlorinated dibenzo-p-dioxins

(CDDs) and chlorinated dibenzofurans (CDFs), to include: heptachlorodibenzofurans, hexachlorodibenzofurans, pentachlorodibenzofurans, tetrachlorodibenzofurans, octachlorodibenzofuran, heptachlorodibenzo-p-dioxin, hexachlorodibenzo-p-dioxin, pentachlorodibenzo-p-dioxin, tetrachlorodibenzo-p-dioxin and octachlorodibenzo-p-dioxin which are by-products of diesel, coal tar, crude oil and asphalt (Table 3).

Dioxin/Furan analysis detected TEQ values in the waste from the partially buried barge and the alkyne storage tank building. Those with some of the highest Total TEQ values in the buried barge include: 2,3,4,7,8-Pentacholordibenzofuran (PeCDF) at 14.0 TEQ, 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) at 5.21 TEQ, 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) at 3.22 TEQ, 1,2,3,4,7,8-Hexacholordibenzofuran (HxCDF) at 2.66 TEQ and 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) at 2.62 TEQ. Octachlorodibenzo-p-dioxin (OCDD was found to be two times greater than LDEQ screening standard for 2,3,7,8-TCDD (Total TEQ).

Waste from the alkyne storage tank building with some the highest Total TEQ values include: 1,2,3,7,8-Pentacholorodibenzo-p-dioxin (PeCDD) at 1.66 TEQ, 2,3,4,7,8-Pentacholorodibnezofuran (PeCDF) at 1.21 TEQ, 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) at 0.834 TEQ, 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) at 0.504 TEQ and 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) at 0.376 TEQ.

Contents of the partially buried barge and alkyne building have been observed leaking into the wetlands located to the southwest (Appendix B, Ref.23, p. 34). In addition, tar-like material was observed approximately 2 to 3 feet in some areas throughout the site.

8.2 RECEPTORS

The groundwater sample from SBA-ESI-13MW contained no PAHs. EPA and START observed that the residences on Castex Landing Road no longer use groundwater wells for drinking water.

Sediment samples from the Mermentau River (SBA-ESI-04SD, SBA-ESI-05SD and SBA-ESI-06SD) and from the wetlands located south of the site (SBA-ESI-10SD- and SBA-ESI-11SD) contain polyaromatic hydrocarbons (PAHs) that meet observed release criteria. PAHs detected include: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran and indeno(1,2,3-cd)pyrene (Table 3). These constituents area associated with waste units on-site used during SBA operations.

The Mermentau River is used for fishing and local residents were observed and interviewed during the ESI fishing in the river as well as Source 8 (Appendices B, C and K). The surface water pathway appears to be the pathway of concern for this site.

8.3 CONCLUSIONS

The Expanded Site Inspection (ESI) conducted by START-3 detected chlorinated dibenzo-p-dioxins (CDDs), chlorinated dibenzofurans (CDFs) and PAHs in the sources located on the facility. An observed release of the same PAHs is detected in the wetland sediment samples and the in the river sediment samples.

9 REFERENCES

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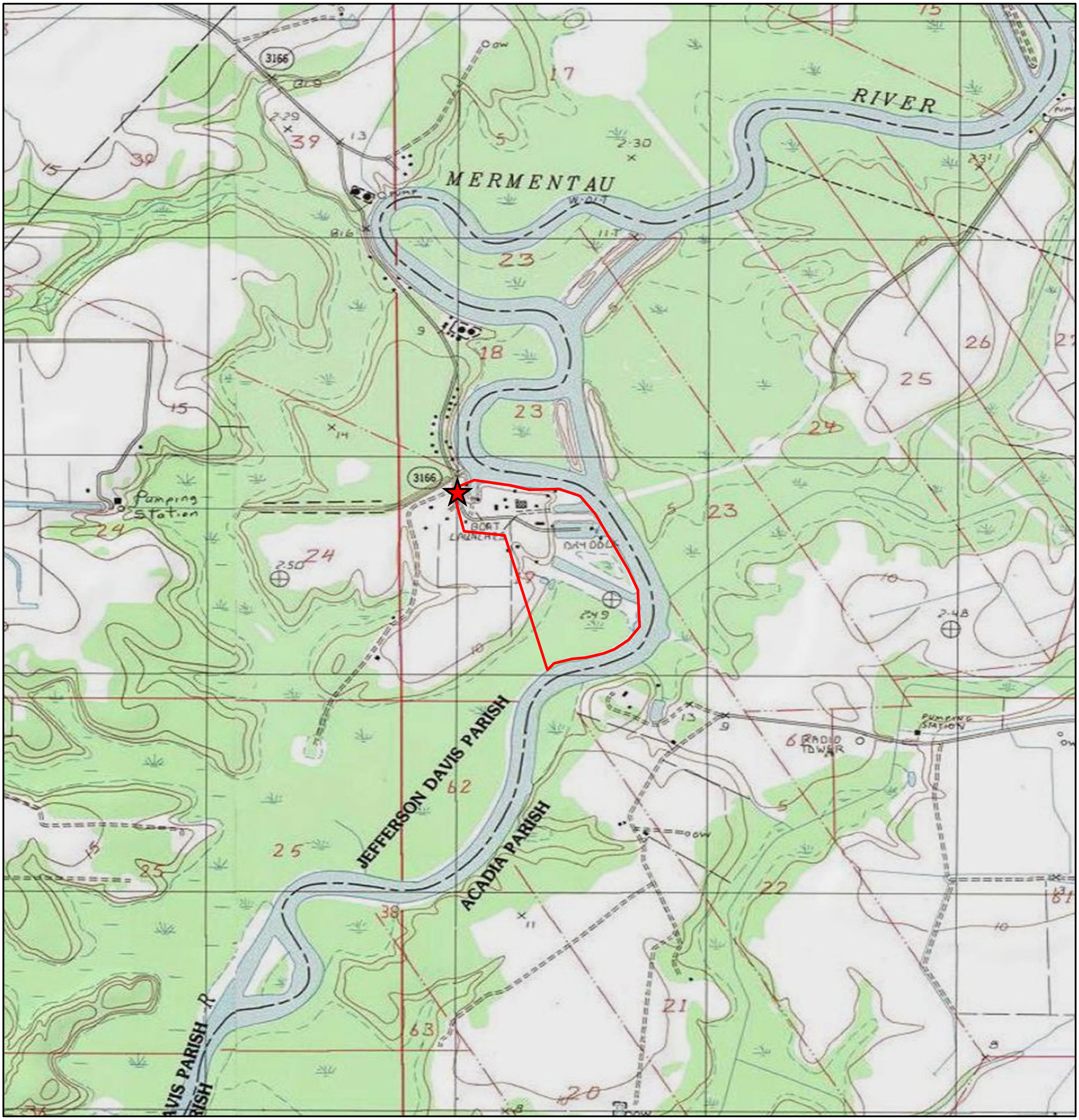
FIGURES



Map of Louisiana

Legend

- ★ Site Entrance
- ▭ SBA Shipyard, Inc.

N
W E
S

1:24,000

0 0.2 0.4 0.8 Miles

US EPA Region 6
START-3

Figure 1. Site Location Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

07 046

May 2013

Map of Louisiana

Legend

SBA Shipyard, Inc.

N

W E

S

1:10,000

0 450 900 1,800 Feet

US EPA Region 6
START-3

Figure 2. Aerial Location Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

07 047

May 2013

Map of Louisiana

Legend

SBA Shipyard, Inc

PPE Location

1:10,000

US EPA Region 6
START-3

Figure 3. PPE Location Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

07 048

May 2013

Map of Louisiana

Legend

- Monitor Well (Unknown)
- Monitor Well
- Sources

N W E S

1:4,000

0 150 300 600 Feet

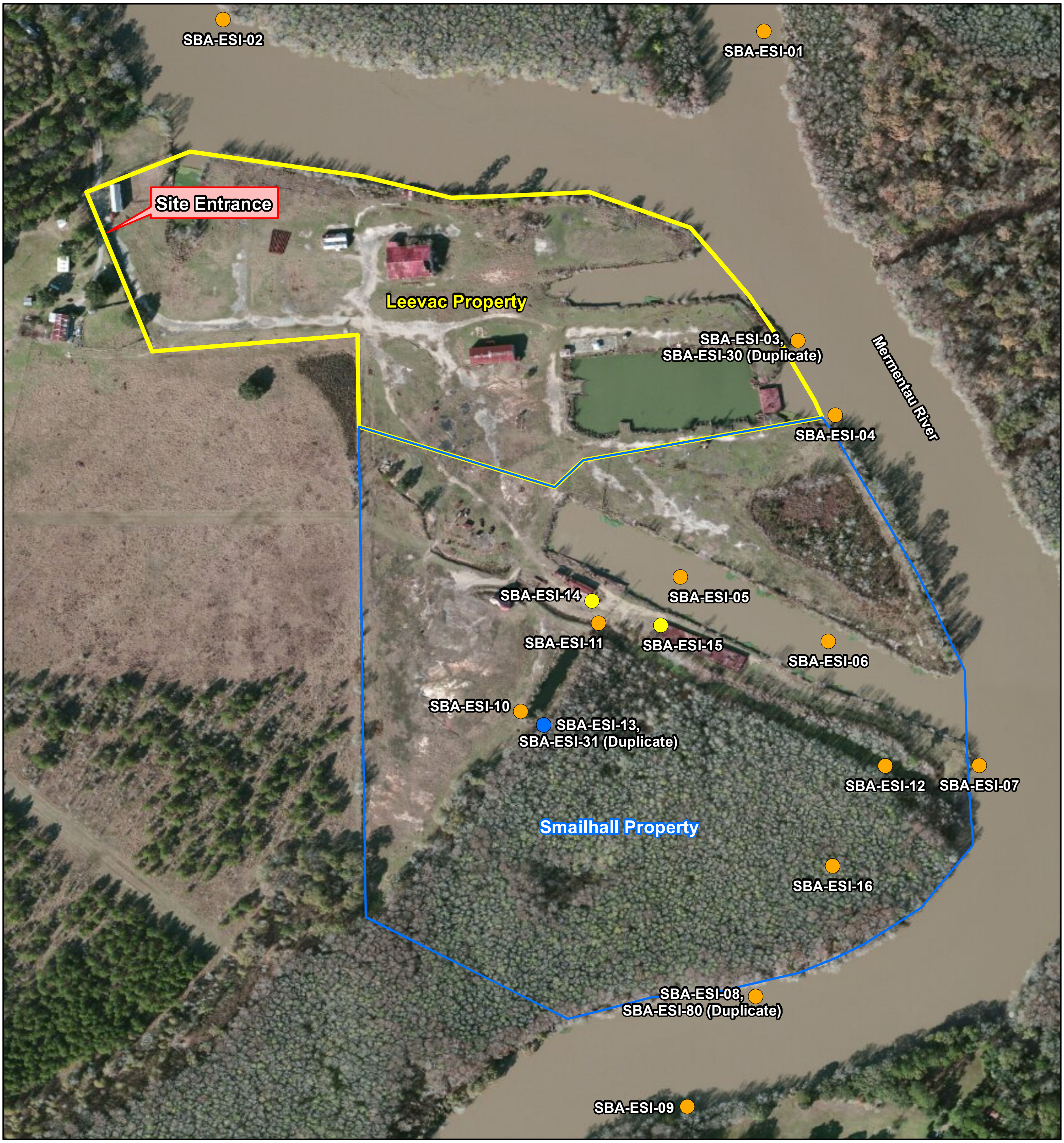
US EPA Region 6
START-3

Figure 4. Site Sketch
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

07 049

September 2013



Map of Louisiana

Legend

- Sediment
- Groundwater
- Waste
- Leevac Property
- Smailhall Property

N
W E
S

1:5,000

0 250 500 1,000 Feet

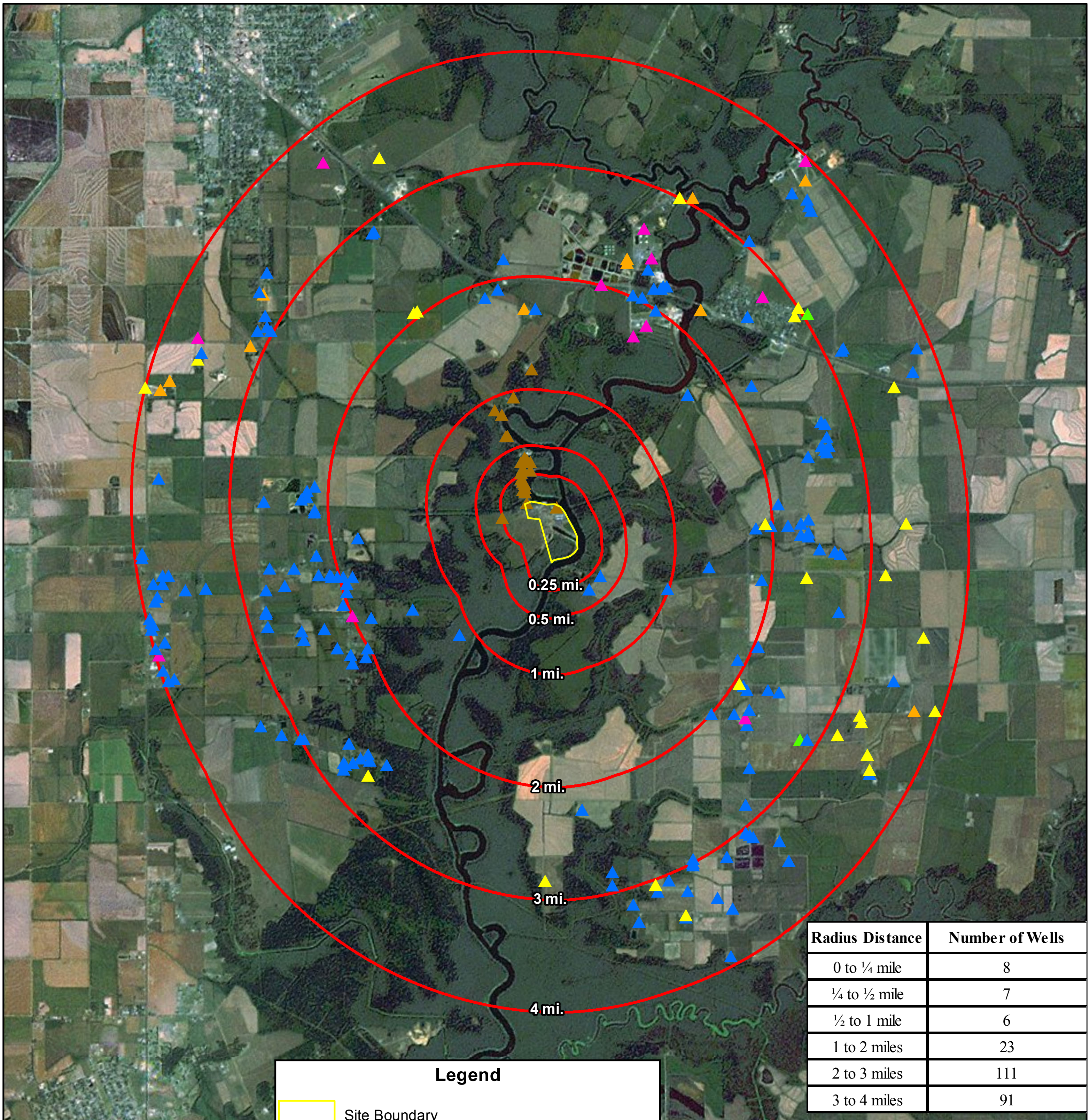
US EPA Region 6
START-3

Figure 5. Expanded Site Inspection Sampling Locations
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

07 050

September 2014



Radius Distance	Number of Wells
0 to ¼ mile	8
¼ to ½ mile	7
½ to 1 mile	6
1 to 2 miles	23
2 to 3 miles	111
3 to 4 miles	91

Map of Louisiana

Legend

Site Boundary

Inactive - Domestic

LA DNR Registered Water Well Use

Aquaculture

Domestic

Industrial

Irrigation

Municipal/Commercial/Institution Public Supply

0 0.5 1 2 Miles

1:75,000

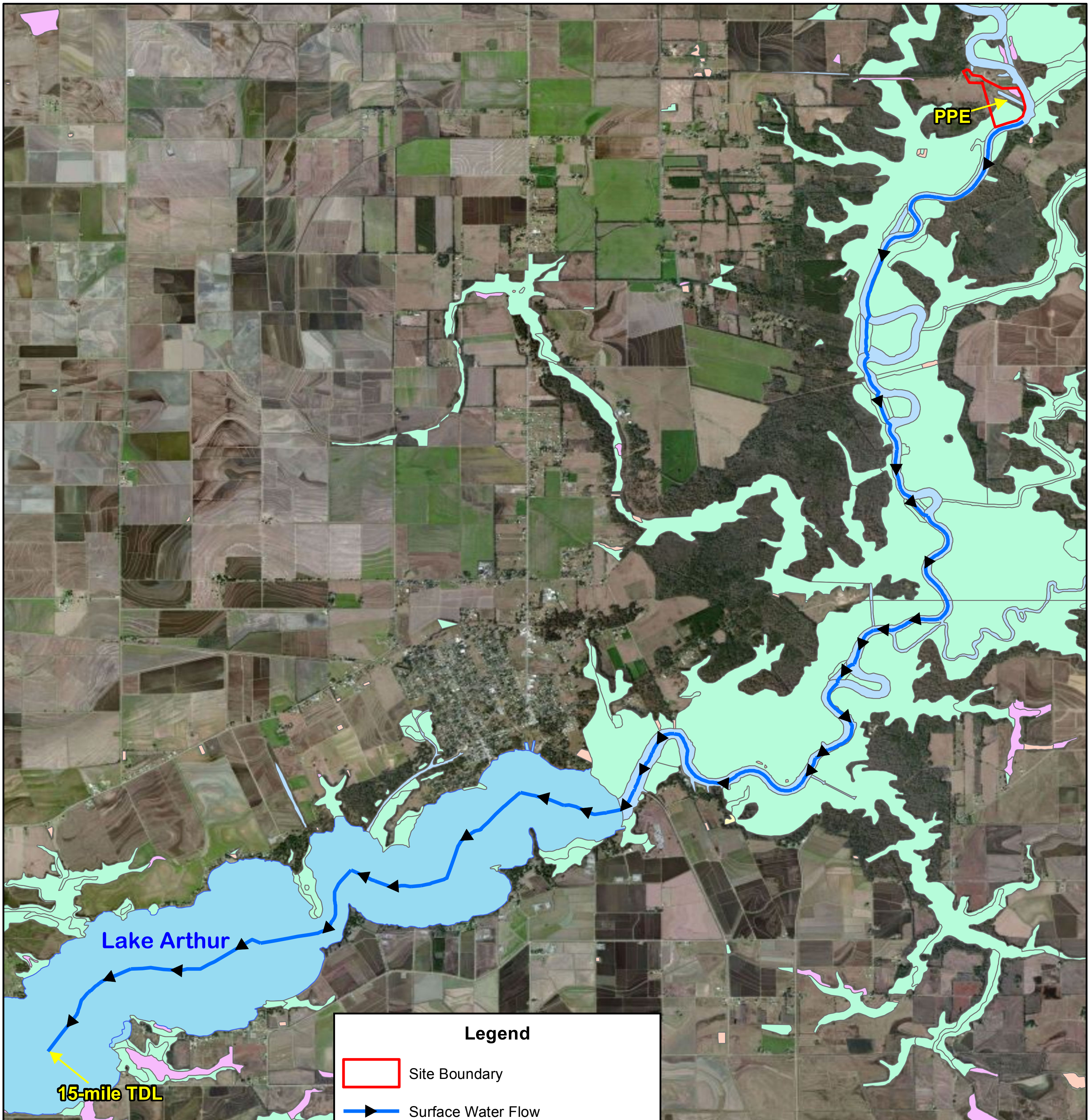
US EPA Region 6
START-3

Figure 6. 4-Mile Groundwater Migration Receptors for SBA Shipyard
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

07 051

September 2013



Map of Louisiana

US EPA Region 6
START-3

Figure 7. Surface Water Migration Pathway
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

07 052

January 2013

TABLES

Sample Number:			SBA-ESI-01SD			SBA-ESI-02SD			SBA-ESI-03SD			SBA-ESI-30SD			SBA-ESI-04SD	
Sampling Location:			SBA-ESI-01			SBA-ESI-02			SBA-ESI-03			SBA-ESI-03			SBA-ESI-04	
Sample Description			Sediment Background along the main shipping channel			Sediment Background along the original river channel			Sediment downstream from slip			Sediment duplicate sample at SBA-ESI-03			Sediment downstream from Dry dock	
Units:			µg/Kg			µg/Kg			µg/Kg			µg/Kg			µg/Kg	
Analyte	RECAP (industrial) ug/kg	MSSL (industrial) ug/kg	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL
% Solids			67.42			41.91			40.24			48.33			64.21		
2-Methylnaphthalene	170,000	220,000	277	U	277	476	U	476	457	U	457	405	U	405	293	U	293
2-Methylphenol		3,100,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Acenaphthene	6,100,000	3,300,000	277	U	277	476	U	476	457	U	457	405	U	405	293	U	293
Acenaphthylene	5,100,000		277	U	277	476	U	476	457	U	457	405	U	405	293	U	293
Anthracene	48,000,000	17,000,000	277	U	277	476	U	476	457	U	457	405	U	405	293	U	293
Benzo (a) anthracene	2,868	2,000	693	U	693	693	U	693	1140	U	1140	1010	U	1010	732	U	732
Benzo (a) pyrene	330	200	693	U	693	693	U	693	1140	U	1140	1010	U	1010	732	U	732
Benzo (b) fluoranthene	2,868	2,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Benzo (g,h,i) perylene			693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Benzo (k) fluoranthene	29,000	21,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Carbazole			693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Chrysene	286,000	210,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	**760**		732
Dibenz (a,h) anthracene	330	200	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Dibenzofuran	150,000	100,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Fluoranthene	2,900,000	2,200,000	277	U	277	476	U	476	457	U	457	405	U	405	**1040**		293
Fluorene	5,400,000	2,200,000	277	U	277	476	U	476	457	U	457	405	U	405	**381**		293
Indeno (1,2,3-cd) pyrene	2,882	2,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Naphthalene	43,000	18,000	277	U	277	476	U	476	457	U	457	405	U	405	293	U	293
Pentachlorophenol	10,000	3,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	732	U	732
Phenanthrene	43,000,000		277	U	277	476	U	476	457	U	457	405	U	405	**1200**		293
Phenol	14,530,000	18,000,000	693	U	693	1190	U	1190	1140	U	1140	1010	U	1010	743	U	732
Pyrene	5,600,000	1,700,000	277	U	277	476	U	476	457	U	457	**525**		405	**808**		293

Bold = detected above Reporting Limits
Outlined = 3x above backgrounc
Yellow = above Risk Level
U = Undetected at Reporting Limit
RL = Reporting Limit
J = Estimated

Sample Number:			SBA-ESI-05SD			SBA-ESI-06SD			SBA-ESI-07SD			SBA-ESI-08SD			SBA-ESI-80SD			SBA-ESI-09SD		
Sampling Location:			SBA-ESI-05			SBA-ESI-06			SBA-ESI-07			SBA-ESI-08			SBA-ESI-08			SBA-ESI-09		
Sample Description			Sediment in barge slip (Source 8)			Sediment in barge slip (Source 8)			Sediment downstream from barge slip (Source 8)			Sediment along wetland boundary on right descending bank of river			Sediment duplicate sample at SBA-ESI-08			Sediment along wetland boundary on left descending bank of river		
Units:			µg/Kg			µg/Kg			µg/Kg			µg/Kg			µg/Kg			µg/Kg		
Analyte	RECAP (industrial) ug/kg	MSSL (industrial) ug/kg	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL
% Solids			40.04			45.14			75.90			35.36			36.82			60.85		
2-Methylnaphthalene	170,000	220,000	486	U	486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
2-Methylphenol		3,100,000	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Acenaphthene	6,100,000	3,300,000	486	U	486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
Acenaphthylene	5,100,000		**1110**		486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
Anthracene	48,000,000	17,000,000	486	U	486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
Benzo (a) anthracene	2,868	2,000	**2120**		1210	**1390**		1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Benzo (a) pyrene	330	200	**1830**		1210	**1460**		1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Benzo (b) fluoranthene	2,868	2,000	**1940**		1210	**1740**		1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Benzo (g,h,i) perylene			1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Benzo (k) fluoranthene	29,000	21,000	**1560**		1210	**1350**		1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Carbazole			1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Chrysene	286,000	210,000	**3840**		1210	**2260**		1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Dibenz (a,h) anthracene	330	200	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Dibenzofuran	150,000	100,000	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Fluoranthene	2,900,000	2,200,000	**4630**		486	**2890**		430	252	U	252	543	U	543	507	U	507	307	U	307
Fluorene	5,400,000	2,200,000	**1480**		486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
Indeno (1,2,3-cd) pyrene	2,882	2,000	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Naphthalene	43,000	18,000	486	U	486	430	U	430	252	U	252	543	U	543	507	U	507	307	U	307
Pentachlorophenol	10,000	3,000	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Phenanthrene	43,000,000		**4850**		486	**1530**		430	252	U	252	543	U	543	507	U	507	307	U	307
Phenol	14,530,000	18,000,000	1210	U	1210	1080	U	1080	630	U	630	1360	U	1360	1270	U	1270	768	U	768
Pyrene	5,600,000	1,700,000	**3990**		486	**2430**		430	252	U	252	543	U	543	507	U	507	307	U	307

Bold = detected above Reporting Limits
Outlined = 3x above backgrounc
Yellow = above Risk Level
U = Undetected at Reporting Limit
RL = Reporting Limit
J = Estimated

Sample Number:			SBA-ESI-10SD			SBA-ESI-11SD			SBA-ESI-12SD			SBA-ESI-16SD		
Sampling Location:			SBA-ESI-10			SBA-ESI-11			SBA-ESI-12			SBA-ESI-16		
Sample Description			Wetland Sediment SE of Former Water Pit 3 (Source 6)			Wetland Sediment NE of Former Water Pit 3 (Source 6)			Wetland Sediment adjacent to the drainage ditch			Wetland Sediment		
Units:			µg/Kg			µg/Kg			µg/Kg			µg/Kg		
Analyte	RECAP (industrial) ug/kg	MSSL (industrial) ug/kg	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL	Result	Flag	RL
% Solids			26.10			57.57			24.85			14.36		
2-Methylnaphthalene	170,000	220,000	**35,900**		5,490	**32,400**		1,520	789	U	789	970	U	970
2-Methylphenol		3,100,000	13,700	U	13,700	3,800	U	3,800	1970	U	1970	2430	U	2430
Acenaphthene	6,100,000	3,300,000	**250,000**		5,490	**51,100**		1,520	789	U	789	970	U	970
Acenaphthylene	5,100,000		**46,400**		5,490	**8,820**		1,520	789	U	789	970	U	970
Anthracene	48,000,000	17,000,000	**1,040,000**		54,900	**1,190,000**		152,000	789	U	789	970	U	970
Benzo (a) anthracene	2,868	2,000	**664,000**		137,000	**114,000**		38,000	1970	U	1970	2430	U	2430
Benzo (a) pyrene	330	200	**507,000**		137,000	**92,100**		38,000	1970	U	1970	2430	U	2430
Benzo (b) fluoranthene	2,868	2,000	**484,000**		137,000	**107,000**		38,000	1970	U	1970	2430	U	2430
Benzo (g,h,i) perylene			**150,000**		137,000	**35,600**		34,200	1970	U	1970	2430	U	2430
Benzo (k) fluoranthene	29,000	21,000	**495,000**		137,000	**98,200**		38,000	1970	U	1970	2430	U	2430
Carbazole			**16,100**	J	13,700	**308,000**	J	38,000	1970	U	1970	2430	U	2430
Chrysene	286,000	210,000	**822,000**		137,000	**177,000**		38,000	1970	U	1970	2430	U	2430
Dibenz (a,h) anthracene	330	200	**61,900**		54,900	**10,100**	J	3,800	1970	U	1970	2430	U	2430
Dibenzofuran	150,000	100,000	**157,000**		13,700	**57,600**		3,800	1970	U	1970	2430	U	2430
Fluoranthene	2,900,000	2,200,000	**1,540,000**		54,900	**413,000**		15,200	789	U	789	970	U	970
Fluorene	5,400,000	2,200,000	**510,000**		54,900	**173,000**		15,200	789	U	789	970	U	970
Indeno (1,2,3-cd) pyrene	2,882	2,000	**167,000**		137,000	**44,300**		38,000	1970	U	1970	2430	U	2430
Naphthalene	43,000	18,000	**9,140**		5,490	**15,000**		1,520	789	U	789	970	U	970
Pentachlorophenol	10,000	3,000	13,700	U	13,700	3,800	U	3,800	1970	U	1970	2430	U	2430
Phenanthrene	43,000,000		**1,590,000**		54,900	**477,000**		15,200	789	U	789	970	U	970
Phenol	14,530,000	18,000,000	13,700	U	13,700	3,800	U	3,800	1970	U	1970	2430	U	2430
Pyrene	5,600,000	1,700,000	**1,380,000**		54,900	**297,000**		15,200	789	U	789	970	U	970

Bold = detected above Reporting Limits
Outlined = 3x above background
Yellow = above Risk Level
U = Undetected at Reporting Limit
RL = Reporting Limit
J = Estimated

Sample Number:	SBA-ESI-14				SBA-ESI-15			
Sampling Location:	SBA-ESI-14				SBA-ESI-15			
Sample Description	Waste sample from SE corner of alkyne storage tank pump house				Waste sample from NW corner of partially buried barge (Source 1)			
Units:	ng/Kg				ng/Kg			
LA Soil SSI :	664 ng/kg				664 ng/kg			
Analyte	Result	Flag	RL	TEQ	Result	Flag	RL	TEQ
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**25**	J	0.211	0.25	**41.7**	J	26.4	0.417
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**1.53**	BJK	0.229	0.0153	**32.3**	KJ	11.6	0.323
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**3.05**	B	0.139	0.305	**26.6**	KJ	16	2.66
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**2.54**	BJ	0.108	0.254	**26.2**	KJ	18.6	2.62
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**1.06**	BJ	0.143	0.106	**9.7**	KJ	4.07	0.970
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**5.04**		0.143	0.504	**32.2**	J	22.8	3.22
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**2.83**	BJ	0.109	0.0849	19.2	UR	19.2	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**4.04**	BJ	0.0836	1.21	**46.8**	KJ	38.9	14.0
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**2.83**	BJ	0.207	0.283	38.5	UR	38.5	
Octachlorodibenzofuran (OCDF)	**14.7**	B	0.548	0.00441	**19.7**	KJ	4.8	0.00591
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**37.6**		0.181	0.376	**41**	J	4.11	0.410
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**1.22**	BJK	0.117	0.122	21.3	UR	21.3	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**3.51**		0.137	0.351	20.5	UR	20.5	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**3.40**		0.117	0.340	**52.1**	J	19.4	5.21
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**1.66**	BJK	0.161	1.66	13.4	UR	13.4	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**0.834**		0.242	0.834	4.99	UR	4.99	
Octachlorodibenzo-p-dioxin (OCDD)	**418**	J	0.782	0.125	**1370**	J	4.87	0.411
Heptachlorodibenzofurans (HpCDF), Total	**39.7**		0.219		**41.7**	J	16	
Hexachlorodibenzofurans (HxCDF), Total	**39.5**		0.132		**32.2**	J	9.71	
Pentachlorodibenzofurans (PeCDF), Total	**48.4**		0.0782		30.4	UR	30.4	
Tetrachlorodibenzofurans (TCDF), Total	**28.4**		0.207		38.5	UR	38.5	
Heptachlorodibenzo-p-dioxins (HpCDD), Total	**90.4**		0.181		**41**	J	4.11	
Hexachlorodibenzo-p-dioxins (HxCDD), Total	**44.9**		0.123		**52.1**	J	20.4	
Pentachlorodibenzo-p-dioxin (PeCDD), Total	**21.4**		0.161		13.4	UR	13.4	
Tetrachlorodibenzo-p-dioxins (TCDD), Total	**7.73**		0.242		4.99	UR	4.99	
Total TCDD TEQ - 2005 WHO (ND = MRL)	6.82				30.2			

LA = Louisiana Screeening Level Total TEQ
Bold = detected above Reporting Limits
Outlined = 3x above background
Yellow = above Risk Level
U = Undetected at Reporting Limit
RL = Reporting Limit

B = associated analyte is found in the method blank, as well as in the sample.
J = estimated value
K = estimated maximum possible concentration for the associated compound
R = rejected

Sample Number:			SBA-ESI-13MW			SBA-ESI-31MW		
Sampling Location:			SBA-ESI-13			SBA-ESI-13		
Sample Description			Groundwater sample at monitoring well along west edge of wetland			Groundwater duplicate sample at SBA-ESI-13		
Units:			µg/L			µg/L		
Analyte	RECAP (GW_SS) ug/L	MCL ug/L	Result	Flag	RL	Result	Flag	RL
2-Methylnaphthalene	0.622	NV	1.9	U	1.9	2.1	U	2.1
2-Methylphenol	NV	NV	4.8	U	4.8	5.2	U	5.2
Acenaphthene	36.50	NV	1.9	U	1.9	2.1	U	2.1
Acenaphthylene	100	NV	1.9	U	1.9	2.1	U	2.1
Anthracene	43	NV	1.9	U	1.9	2.1	U	2.1
Benzo (a) anthracene	7.8	NV	4.8	U	4.8	5.2	U	5.2
Benzo (a) pyrene	0.2	0.2	4.8	U	4.8	5.2	U	5.2
Benzo (b) fluoranthene	4.8	NV	4.8	U	4.8	5.2	U	5.2
Benzo (g,h,i) perylene	NV	NV	4.8	U	4.8	5.2	U	5.2
Benzo (k) fluoranthene	2.5	NV	4.8	U	4.8	5.2	U	5.2
Carbazole	NV	NV	4.8	U	4.8	5.2	U	5.2
Chrysene	1.6	NV	4.8	U	4.8	5.2	U	5.2
Dibenz (a,h) anthracene	2.5	NV	4.8	U	4.8	5.2	U	5.2
Dibenzofuran	10	NV	4.8	U	4.8	5.2	U	5.2
Fluoranthene	146	NV	1.9	U	1.9	2.1	U	2.1
Fluorene	24,000	NV	1.9	U	1.9	2.1	U	2.1
Indeno (1,2,3-cd) pyrene	3.7	NV	4.8	U	4.8	5.2	U	5.2
Naphthalene	10	NV	1.9	U	1.9	2.1	U	2.1
Pentachlorophenol	1	1	4.8	U	4.8	5.2	U	5.2
Phenanthrene	182.5	NV	1.9	U	1.9	2.1	U	2.1
Phenol	182.5	NV	4.8	U	4.8	5.2	U	5.2
Pyrene	182.5	NV	1.9	U	1.9	2.1	U	2.1

Bold = detected above Reporting Limits
Outlined = 3x above background
Yellow = above Risk Level
U = Undetected at Reporting Limit
RL = Reporting Limit
NV = no value

Table 5

Groundwater Population

Target Distance (miles)	Number of Municipal Supply Wells	Number of Domestic Wells	Total Population Served
0 to 0.25	0	0	0
>0.25 to 0.50	0	7	18.34
>0.50 to 1	0	5	13.1
>1 to 2	0	20	52.4
>2 to 3	2	96	912.52

Source: Reference 17, 22, 23, 12

APPENDICES

Appendix A

Technical Direction Document TO-0009-12-10-02, Amendment A and Amendments 002 to 009

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Appendix B

Photographic Documentation

Logbook Photo #	SDC10012
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SW
Date	9/15/14
Time	1749hrs
Photographer	N. Biscocho (START)
Witness	P. Moisan (START)

Description:

Current condition of the Buried Barge
Southeast corner of the buried barge facing the wetland.

Logbook Photo #	SDC10013
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NW
Date	9/15/14
Time	1749hrs
Photographer	N. Biscocho (START)
Witness	P. Moisan (START)

Description:

Current condition of the Buried Barge
Southeast corner of the buried barge facing NW. Alkaline Storage Tank building seen on the upper right of the photo.

Logbook Photo #	SDC1002
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/15/14
Time	1833 hrs
Photographer	N. Biscocho (START)
Witness	M. Mohler (START-URS)

Description:

- A family of 5 seen fishing on the Barge Slip on the Mermentau River. The family stated that they don't fish here often, but when they do, they only catch catfish for consumption.
- Sediment samples SBA-ESI-05 and SBA-ESI-06 were collected here on 9/17/14.
- (for reference: the buried barge area [*not seen on this photo*] is located on the right side of this photo).

Logbook Photo #	SDC12326
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NW
Date	9/17/14
Time	1128 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

- Public boaters observed in the inlet while collecting the sediment sample core SBA-ESI-05.
- Sediment samples SBA-ESI-05 and SBA-ESI-06 were collected this barge slip on 9/17/14.
- (for reference: the buried barge area [*not seen on this photo*] is located on the left side of this photo).

Logbook Photo #	SDC12331
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/17/14
Time	1406 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Fisherman near location SBA-ESI-04

Logbook Photo #	SDC12276
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	W
Date	9/16/14
Time	1141 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Public boater observed during Vibracore sediment sampling activities.

Logbook Photo #	SDC10024
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SW
Date	9/17/14
Time	1005 Hrs
Photographer	P. Moisan (START)
Witness	B. Cook (EPA SAM)

Description:

Current condition of the Buried Barge
Northwest corner of the buried barge facing the wetland.
Sample Location for Waste Sample SBA-ESI-15.

Logbook Photo #	SDC10023
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/17/14
Time	0955 hrs
Photographer	P. Moisan (START)
Witness	B. Cook (EPA SAM)

Description:
(Photo 1 of 2 from SBA-ESI-14)

- Sample Location for Waste Sample SBA-ESI-14.
- view of oily material leaking/releasing from a barge being dismantled (Alkaline Storage Tank) toward the wetland.
- Oily leak was visible, and waste sample was also collected, during the EPA Site inspection sampling event on August 19, 2013.

Logbook Photo #	SDC10017
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/15/14
Time	1756 hrs
Photographer	N. Biscocho (START)
Witness	P. Moisan (START)

Description:
(Photo 2 of 2 from SBA-ESI-14)
- Sample Location for Waste Sample SBA-ESI-14. Sample collected on September 17, 2014.
- Additional view of oily material leaking/releasing from a barge being dismantled (Alkaline Storage Tank) facing the wetland.
- Oily leak was visible, and waste sample was also collected, during the EPA Site inspection sampling event on August 19, 2013.

Logbook Photo #	SDC10025
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/18/14
Time	0921 hrs
Photographer	P. Moisan (START)
Witness	N. Biscocho (START)

Description:

- View of Monitor Well #5 (see Figure and Appendix GPS for location). Wetland seen on the background.
- Groundwater samplesSBA-ESI-13 and SBA-ESI-31 (Duplicate) were collected here.
- (Note: Monitor well was located on the last day of the EPA Site Inspection on August 2013 and was not sampled at the time).

Logbook Photo #	SDC12367
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/18/14
Time	1112 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *south* from sample location SBA-ESI-01 (*background sample location)*.
Water depth is about 6-7 ft.

Logbook Photo #	SDC12368
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/18/14
Time	1112 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *north* from sample location SBA-ESI-01 (*background sample location)*.
Water depth is about 6-7 ft.

Logbook Photo #	SDC12366
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	1112 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Vibracore sediment sample at sample location SBA-ESI-01 *(background sample location)*.
Water depth is about 6-7 ft.
No odor or discolored water observed during coring operations.

Logbook Photo #	SDC12370
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	1250 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-01 core sample *(background sample)*.

SBA-ESI-01 sample: wet, very moist; gray sandy clay with gravel,
transitioning to tan very moist sandy clay, little gravel.

Logbook Photo #	SDC12364
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/18/14
Time	0958 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *southeast* from sample location SBA-ESI-02 *(background sample location).*
Water depth is about 13 ft.

Logbook Photo #	SDC12365
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NW
Date	9/18/14
Time	0958 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *northwest* from sample location SBA-ESI-02 *(background sample location).*
Water depth is about 13 ft.

Logbook Photo #	SDC12363
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	0958 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Vibracore sediment sample at sample location SBA-ESI-02 *(background sample location)*.
Water depth is about 13 ft.
No odor or discolored water observed during coring operations.

Logbook Photo #	SDC12371
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	1307 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-02 core sample *(background sample)*.

SBA-ESI-02 sample: moist; gray clay with significant amounts of organic/woody debris, transitioning to tan very moist sandy clay, little gravel.

Logbook Photo #	SDC12361
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/18/14
Time	0912 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *south* from sample location SBA-ESI-03.
Water depth is about 7-8 ft.

Logbook Photo #	SDC12362
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/18/14
Time	0912 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *north (upstream)* from sample location SBA-ESI-03.
Water depth is about 7-8 ft.

Logbook Photo #	SDC12360
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	W
Date	9/18/14
Time	0908 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Vibracore sediment sample at sample location SBA-ESI-03.
Water depth is about 7-8 ft.
Slight sheen observed during coring operations *(see next photo)*.

Logbook Photo #	SDC12357
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	0834 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Sample location SBA-ESI-03.
Water depth is about 7-8 ft.
Slight sheen observed before and during coring operations.

Logbook Photo #	SDC12369
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/18/14
Time	1244 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-03 core sample.

SBA-ESI-03 sample: wet, very moist; gray clay with significant amounts of organic/woody debris; Slight hydrocarbon aroma to the core during sampling.

Logbook Photo #	SDC12332
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	W
Date	9/17/14
Time	1412 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Facing *west* from sample location SBA-ESI-04.
Water depth is about 10 ft.

Logbook Photo #	SDC12334
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/17/14
Time	1414 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Facing *south* from sample location SBA-ESI-04.
Water depth is about 10 ft.

Logbook Photo #	SDC12338
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1442 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Capping Vibracore sediment sample at sample location SBA-ESI-04.
Water depth is about 10 ft.
No odor or discolored water observed during coring operations.

Logbook Photo #	SDC12339
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1606 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-04 core sample.

SBA-ESI-04 sample: wet; gray clay with little organic/woody debris, transitioning to a stiff gray clay with organic woody debris; A small slight band of sheen observed about midway of the sediment core.

Logbook Photo #	SDC12321
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/17/14
Time	1054 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Facing *southeast* from sample location SBA-ESI-05.
Water depth is about 14ft.

Logbook Photo #	SDC12322
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/17/14
Time	1054 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Facing *northeast* from sample location SBA-ESI-05.
Water depth is about 14ft.

Logbook Photo #	SDC12324
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/17/14
Time	1101 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Vibracore sediment sampling at sample location SBA-ESI-05.
Water depth is about 14ft.
SBA-ESI-05 sediment sample is collected about 175ft. from end of the inlet, near source 8, at about the center of the channel.
No odor or discolored water observed during coring operations.
No unusual observations made while coring.

Logbook Photo #	SDC12330
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1349 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-05 core sample.

SBA-ESI-05 sample: wet; very soft; dark gray clay with little organic/woody debris;
Bottom of the core is green clay

Logbook Photo #	SDC12317
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NW
Date	9/17/14
Time	0947 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Facing *northwest* from sample location SBA-ESI-06.
Water depth is about 12-13 ft.

Logbook Photo #	SDC12318
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/17/14
Time	0948 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Facing *southeast* from sample location SBA-ESI-06.
Water depth is about 12-13 ft.

Logbook Photo #	SDC12319
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	W
Date	9/17/14
Time	0948 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Vibracore sediment sampling at sample location SBA-ESI-06.
Water depth is about 12-13 ft.
SBA-ESI-06 sediment sample is collected about 150ft. from river inlet area at Source 8.
No odor or discolored water observed during coring operations.
No unusual observations made while coring.

Logbook Photo #	SDC12328
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1345 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-06 core sample.

SBA-ESI-06 sample: wet; very soft; dark gray clay with organic/woody debris.

Logbook Photo #	SDC12299
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/16/14
Time	1630 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *down*stream from sample location SBA-ESI-07.

Logbook Photo #	SDC12300
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/16/14
Time	1630 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *up*stream from sample location SBA-ESI-07.

Logbook Photo #	SDC12306
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/16/14
Time	1646 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

Sediment sample collection at SBA-ESI-07 using a Vibracore unit.

Logbook Photo #	SDC12310
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	0818 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-07 core sample.

SBA-ESI-07 sample: very soft; gray clay with very little sand; and organic/woody debris;
No odor, no staining observed.

Logbook Photo #	SDC12280
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/16/14
Time	1218 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *upstream* from sample location SBA-ESI-08.

Logbook Photo #	SDC12281
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SW
Date	9/16/14
Time	1218 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Facing *down*stream from sample location SBA-ESI-08

Logbook Photo #	SDC12282
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/16/14
Time	1219 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

(Vibracore sampling steps. Photo 1 of 4)

Sediment sample collection at SBA-ESI-08 using a Vibracore unit.

Logbook Photo #	SDC12286
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/16/14
Time	1234 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

(Vibracore sampling steps. Photo 2 of 4)

Pumping excess water out of the core. Sediment sample collection at SBA-ESI-08 using a Vibracore unit.

Logbook Photo #	SDC12289
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/16/14
Time	1254 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

(Vibracore sampling steps. Photo 3 of 4)

Tightening/securing cap of sample core. Sediment sample collection at SBA-ESI-08 using a Vibracore unit.

Logbook Photo #	SDC12290
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/16/14
Time	1256 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

(Vibracore sampling steps. Photo 4 of 4)

Removing excess space on the tube, then secure with a cap before transporting to the processing area. Sediment sample collection at SBA-ESI-08 using a Vibracore unit.

Logbook Photo #	SDC12314
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	0833 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

START collecting sediment sample from SBA-ESI-08 core sample.

SBA-ESI-08 sample: very soft; moist dark gray; silty clay with very little sand;
minor organic debris throughout;
slight rotting organic smell in the top portion of the core; No staining observed.

Logbook Photo #	SDC12296
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/16/14
Time	1610 hrs
Photographer	N. Biscocho (START)
Witness	K. Berecz (START)

Description:

Sample location of SBA-ESI-09.
Water depth is about 25 ft.
SBA-ESI-09 is the most down gradient sediment sample collected.

Logbook Photo #	SDC12294
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/16/14
Time	1604 hrs
Photographer	N. Biscocho (START)
Witness	K. Berecz (START)

Description:

Sediment sample SBA-ESI-09 collected using a ponar.
Water depth is about 25 ft.
SBA-ESI-09 is the most down gradient sediment sample collected.

Logbook Photo #	SDC12340
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/17/14
Time	1636 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Grab sediment sample at location SBA-ESI-10.
Hydrocarbon odor, visible sheen observed on surface of sediment.

Logbook Photo #	SDC12342
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1636 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Grab sediment sample at location SBA-ESI-10.
Hydrocarbon odor, visible sheen observed on surface of sediment.

Logbook Photo #	SDC12345
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1646 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Grab sediment sample at location SBA-ESI-11.
Hydrocarbon odor, visible sheen observed on water surface.

Logbook Photo #	SDC12346
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	Down
Date	9/17/14
Time	1648 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Grab sediment sample at location SBA-ESI-11.
Hydrocarbon odor, visible sheen observed on water surface.

Logbook Photo #	SDC12348
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SW
Date	9/17/14
Time	1701 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

Description:

Grab sediment sample at location SBA-ESI-12.
Rotting organic debris odor, no sheen observed.

Logbook Photo #	SBA-ESI-16-B
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/18/14
Time	1356 hrs
Photographer	M. Mohler (START-URS)
Witness	B. Early (START-URS)

Description:

Sediment sample location SBA-ESI-016 facing north.
View of the trenasse (small channel in the cypress-tupelo swamp).

Logbook Photo #	SBA-ESI-16-C
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/18/14
Time	1356 hrs
Photographer	M. Mohler (START-URS)
Witness	B. Early (START-URS)

Description:

Sediment sample location SBA-ESI-016 facing south.
View of the trenasse and Mermentau river in the background.

Logbook Photo #	SBA-ESI-16-D
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NE
Date	9/18/14
Time	1355 hrs
Photographer	M. Mohler (START-URS)
Witness	B. Early (START-URS)

Description:

Sediment sample collection at location SBA-ESI-016, near the edge of the trenasse.

Logbook Photo #	SDC10028
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	E
Date	9/19/14
Time	0843 hrs
Photographer	N. Biscocho (START)
Witness	B. Early (START-URS)

Description:

Investigation-derived wastes (IDW) left on-site prior to team demobilizing.

Logbook Photo #	SDC10029
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	E
Date	9/19/14
Time	0844 hrs
Photographer	N. Biscocho (START)
Witness	B. Early (START-URS)

Description:

Investigation-derived wastes (IDW) left on-site prior to team demobilizing. Drums are located on the right side of this building structure.

Logbook Photo #	SDC10039
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	S
Date	9/19/14
Time	0905 hrs
Photographer	N. Biscocho (START)
Witness	B. Early (START-URS)

Description:

SBA site secured/locked prior to demobilizing from Jennings, LA

Appendix C

Copy of Logbooks

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...for outdoor writing people."

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Logbook 1of 2

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ALL-WEATHER
JOURNAL
No. 391

Site Name: SBA Shipyard Inc.
Type of Activity: Expanded Site Inspection (ESI)
Site Location: 9040 Castex Landing Road
Jefferson ~~Parish~~ Davis
Jennings, LA 70546
CERCLIS No: LAD 008434185
SSID No: A6FX

DYNAMAC® CORPORATION

INCH

"Rite in the Rain" ®
ALL-WEATHER WRITING PAPER

Site Name: SBA Shipyard Inc.

type of Activity: Expanded Site Inspection (ESI)

Site location: 9040 Castex Landing Road

~~Name~~ Jefferson Parish → Davis

Jennings, LA 70546

Address

latitude from site Entrance -30° 9' 50.9394" N

Longitude from Site Entrance - 92° 36' 57.168" W

~~Phone~~

CERCLIS No: LAD 008434185

SSID: ~~Project~~ A6FX

EPA Site Assessment Manager: Brenda Cook

START TDD No: TDD-T0-0009-12-10-02

Type of Documentation: Logbook of Site Activities

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

CONTENTS

PAGE	REFERENCE	DATE
	(b) (6) [redacted]	
	(b) (6) [redacted] grazes his cattle and sheep on this property. He came on site on 09/16/2014, and chatted with Brenda Cook.	
	Leland Bolland - Mr. Snaihall's partner	

START 10/4

DYNAMAC® CORPORATION

09/15/2014 Paul Moisan

09/15/2014 - 1730 arrive at site, meet up with URS personnel at site. People on site are Paul Moisan, Noel Biscocho, Karen Berecz (all three with Dynamac; Michael Mohler, Kelly Turk, Brian Early (all three from URS), and Brenda Cook (EPA). Crew walks site to find launch spot for boats, and where to put command spot. —— P.7.M.

1800 - a small boat with a family of five is seen fishing on the Mermentau River next to the site. They said that they don't fish here often, but when they do, they've only caught a few catfish for consumption in this area. —— P.7.M.

1845 - Crew departs site, end of day. —

Paul Moisan

09/16/2014 - Paul Moisan

09/16/2014 - 0715 arrive at site. URS and Dynamac personnel (Moisan, Biscocho, Berecz); URS (Early, Mohler, Turk) and Brenda Cook (EPA). —— P.7.M.

0735 - Crew holds safety meeting. — Main topics at safety meeting include slips, trips, falls, water hazards, heat, and biological hazards. —— P.7.M.

The weather is warm, humid and clear, 74°F, with a chance of thunderstorms this afternoon.

0910 - Gilbert Walthrup and Curly Gillery of Leevac show up at site. Gilbert shows where the Leevac Property line is, in the center of the site. Brenda wants us to GPS the property line. —— P.7.M.

Brenda wants us to include property deeds to verify in report. —— P.7.M.

0915 - Berenda Le Compte and Mike Hoskins of Lake Charles Coast Guard show up on site. Brenda Cook walks us (Coast Guard, Moisan, and Mark Hayes (EPA) around site. Hayes talks to Hoskins about removal action for the barges. Brenda Cook says that the owner stated that several

09/16/2014 - Paul Moisan

of the generators who used this facility.
1005 - Early comes back from dropping boats. He will pick up Karen, so she can drive them back to pick up truck.
1025 - Crew brings boats to site via the Mermentau River. ——— P.F.M.
1100 - Crew of Mohler, Early, Turk, and Berecz depart site on boats to collect sediment samples on the river. Turk is riding alone in ~~an~~ P.F.M. Jon Boat as the safety boat. The Coast Guard has left, along with Mark Hayes and Leeville personell have all left. Brenda Cook, Biscocho and Moisan are the only ones left at and on site.
1145 - Berecz informed me that on the first boring, they hit woody debris and had to ~~[illegible]~~ P.F.M. move location a few inches. ——— P.F.M.
1315 - Crew of Early, Mohler, Berecz, and Turk came back from collecting sediment sample 8. 9 was unable to be collected due to refusal. ——— P.F.M.
1505 - Crew back from lunch, and are getting ready to go back to sampling

09/16/2014 Paul Moisan

the river. ——— P.F.M.
1545 - Crew of Early, Mohler, Turk, Berecz and Biscocho depart in boats to go and try with the ponar dredge to get sample number 9 ——— P.F.M.
1710 - Crew comes back with sample numbers 07 and 09. ——— P.F.M.
1815 - Depart site en route to hotel.

Paul Moisan 9/16/2014

09/17/2014 Paul Moi

0705 - Moisan and Berecz arrive at the SBA site, where the remainder of the crew already is. We are moving the site setup, due to overnight rain and fear of rutting up the dirt road. P.7.M.
Weather is sunny and warm (≈73°F) and very humid. The forecast calls for 50% chance of rain this afternoon.
0800 - crew is preparing to collect samples from the tubes collected yesterday.
0810 - Crew holds safety meeting - P.7.M.
0900 - We're preparing to go and collect more sediment samples on the boat/river. - P.7.M.
0950 - arrive at southeast corner of old boiler, where it is overflowing on ground. We will collect a waste sample at this location. Brenda Cook and Paul Moisan will collect sample of black stained soil. The soil is sandy and hard.
1010 - Collect waste sample from western side of eastern barge. This sample is hard and oily, with a strong hydrocarbon odor. P.7.M.
1735 - Depart site - end of day.

09/18/2014 Paul Moisan

0711 - Moisan and Berecz arrive on site. The remainder of the crew is already on site. We are getting ready for todays activities, which will include collecting three more sediment samples with the vibracore, and the remaining monitoring well groundwater sample. P.7.M.
0745 - Safety meeting is held. One of the issues today is supposed to be rain. It is overcast now, with a chance of rain, and warm (≈73°F) and humid. P.7.M.
0930 - Biscocho and Moisan ~~collect~~ open monitoring well #5, SBA-ESI-13. Sample was collected by Moisan using a bailer. Water is relatively clear, with a little sediment. P.7.M.
1055 - Moisan is helping Biscocho processing samples. Tommy Doran of LDEQ is here.
1111 - Coast Guard personnel arrive on site. P.7.M.
1345 - Moisan and Berecz collect the IDW sample from the two drums of IDW collected at the site. Both drums are full of P.7.M. (Both drums completely full).

09/18/2014 Paul Moison

The two drums contain the sediments that were collected, visqueen, and cleaning casing. Gilbert Waldrep (of Leevac), stated that we can keep the drums on site. Brenda Cook stated that she would like for us to store them in the Leevac Receiving warehouse. Mr. Waldrep stated that would be all right. ——— P.M.

1540 - Crew is cleaning up site and URS personnel are preparing to remove the boats from the water.

1620 - Biscocho and Moison depart site en route to FedEx in Lake Charles, LA. When passing through the gate, an extra key was given to Brenda Cook, who in turn handed the key over to Coast Guard personnel.

1708 - Sample coolers (4) were dropped off at FedEx. Moison and Biscocho depart en route back to Jennings, LA. —

1750 - Arrive back at hotel in Jennings. We're going to begin packaging equipment.

SBA site Visitors during the ESI

Brenda LeCompte Brenda.M.Lecompte@USCG.mil

Mike Hoskins michael.hoskins@uscg.mil
337-721-5756

GILBERT WALDREP
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GWALDREP@LEEVAC.COM

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MARK HAYES
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Logbook 2 of 2

"Rite in the Rain"®
ALL-WEATHER
JOURNAL
No. 391

Site Name: SBA Shipyard Inc.
Type of Activity: Expanded Site Inspection (ESI)
Site Location: 9040 Castex Landing Road
Jefferson Davis Parish
Jennings, LA 70546
CERCLIS No: LAD 008434185
SSID. No: A6FX

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"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

INCH

Name SBA Shipyard Inc.
Expanded Site Inspection

Address

Phone

Project

CONTENTS Logbook 2 of 2

PAGE	REFERENCE	DATE
Site Name:	SBA Shipyard Inc	
Type of Activity:	Expanded Site Inspection (ESI)	
Site Location:	9040 Castex Landing Road	
	Jefferson Davis Parish	
	Jennings, LA 70546	
Lat. from Site Entrance:	~~[illegible]~~ 30° 9' 50.9344" N	
Long from site Entrance:	-92° 36' 57.168" W	
CERCLIS No:	LAD 008434185	
SSID No:	A6FX	
EPA Site Assessment Manager:	Brenda Cook	
START TDD No:	TO-0009-12-10-02	
Type of Documentation:	Logbook of Site Activities	

START

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07 156

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START

09/16/2014 SBA SHIPYARD KBERECZ
WEATHER: SHOWERS AND THUNDERSTORMS LIKELY, MAINLY AFTER 1PM. MOSTLY CLOUDY WITH A HIGH NEAR 89°F. HEAT INDEX VALUES AS HIGH AS 97%. NORTH-EAST WIND AROUND 5 MPH BECOMING CALM IN THE AFTERNOON. ——— KB

0715 ARRIVE AT SITE, SBA SHIPYARD, 9040 CAS-TEX LANDING ROAD, HIGHWAY 3166, JEFFERSON DAVIS PARISH, JENNINGS, LA 70546. ——— KB

0735 START-BERECZ, MOISAN AND BISCOCHO ALONG WITH EPA-BRENDA COOK, URS - MICHAEL MOHLER, BRIAN EARLY AND KELLY TURK ATTEND DAILY SAFETY MEETING ——— KB

0800 START TEAM SETS UP LAND BASED OPERATIONS WHILE URS TEAM GOES TO LAUNCH BOATS FROM PUBLIC LAUNCH LOCATIONS. ——— KB

1100 START BERECZ, URS-MOHLER, EARLY DEPART ON PONTOON BOAT TO COLLECT SEDIMENT SAMPLES. URS-TURK DEPARTS IN JOHN BOAT TO SUPPORT SAMPLING TEAM. ——— KB

1120 TEAM SETS UP TO SAMPLE SEDIMENT AT LOCATION SBA-09-ESI, DOWNSTREAM FROM SITE ALONG LEFT DESCENDING BANK (LDB). URS TEAM BEGINS VIBRACORE OPERATIONS. TEAM IS GETTING REFUSAL AT LOCATION - MAY BE DUE TO WOODY DEBRIS. NO ODOR OR UNUSUAL COLORED WATER OBSERVED DURING ——— KB

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09/16/2014 SBA SHIPYARD KBERECZ

VIBRACORE OPERATIONS DUE TO REFUSAL AND LACK OF SAMPLE COLLECTED TEAM MOVES TO NEW LOCATION ABOUT 15 FEET UPSTREAM. WATER DEPTH IS APPROXIMATELY 12 FEET. TEAM BEGINS TO VIBRACORE NEW LOCATION. OBSERVE TWO RECREATIONAL BOATERS PASS BY DURING OPERATIONS. NO ODOR, NO DISCOLORED WATER OBSERVED WHILE VIBRACORING. TEAM IS GETTING REFUSAL AGAIN, THIS TIME ON A HARD SAND, UNABLE TO COLLECT SAMPLE AT LOCATION ——— KB

1215 SET UP AT LOCATION SBA-08-ESI TEAM BEGINS VIBRACORE OPERATIONS. TEAM IS ABLE TO CORE THROUGH MUCK AND SEDIMENT. NO ODOR AND NO OBSERVED DISCOLORED WATER DURING CORING. NO UNUSUAL OBSERVATIONS MADE DURING CORING. ——— KB

1400 RETURN TO SITE TO DROP OFF SBA-08-ESI SAMPLE CORE ——— KB

1500 PROCESS CORE SBA-08-ESI - DECIDE NOT TO PROCESS CORE AND DEPART ON BOAT TO COLLECT MORE SEDIMENT SAMPLES ——— KB

1535 START-BERECZ AND BISCOCHO ALONG WITH URS-MOHLER AND EARLY DEPART ON PONTOON TO COLLECT SEDIMENT SAMPLES. URS-TURK FOLLOWS IN SUPPORT BOAT. ——— KB

——— KB

09/16/2014 SBA SHIPYARD KBERECZ

1555 RETURN TO LOCATION SBA-09-ESI TO COLLECT SEDIMENT SAMPLE WITH PONAR DREDGE UNABLE TO COLLECT INITIAL SAMPLE PONAR IS HITTING CLAY MOVE ABOUT 15 FEET LATERALLY FROM INITIAL SPOT TO TRY TO COLLECT SAMPLE WATER DEPTH IS 25 FEET. SAMPLE IS COLLECTED BY START-BISCOCHO. SEDIMENT IS A GRAY CLAY AT FIRST GLANCE. NO ODOR OR STAINING OF SEDIMENT OBSERVED. ——— KB

1615 MOVE TO LOCATION SBA-07-ESI. TEAM BEGINS TO SET UP TO DO VIBRACORING AT LOCATION OBSERVED THREE BOATERS PASS BY WHILE VIBRA CORING LOCATION. NO ODOR OR DISCOLORED WATER OBSERVED WHILE CORING. ——— KB

1715 RETURN TO SITE TO PROCESS CORES ——— KB

SBA-09C-ESI: GRAY CLAY, WET, VERY SOFT, TRACE ORGANICS/WOODY DEBRIS ——— KB

~~SBA-0~~ ——— KB

PHOTO LOG LIST/DESCRIPTION: ——— KB

2270: LOOKING UPSTREAM FROM LOCATION SBA-09-ESI. ——— KB

2271: LOOKING DOWNSTREAM FROM LOCATION SBA-09-ESI ——— KB

2272: LOOKING EAST FROM LOCATION SBA-09-ESI

2273: VIBRA CORE LOCATION SBA-09-ESI BEFO-

——— KB

09/16/2014 SBA SHIPYARD KBERECZ

RE CORING ——— KB

2274: URS TEAM SETTING UP FOR VIBRA CORING

2275: LOCATION DURING VIBRA CORING, SBA-09-ESI ——— KB

2276: PUBLIC BOATER OBSERVED WHILE VIBRA CORING SBA-09-ESI ——— KB

2277: PUBLIC BOATER OBSERVED WHILE VIBRA CORING SBA-09-ESI ——— KB

2278: VIBRA CORING SECOND ATTEMPT AT SBA-09-ESI ——— KB

2279: PUBLIC BOATER OBSERVED WHILE VIBRA CORING SBA-09-ESI ——— KB

2280: LOOKING UPSTREAM FROM LOCATION SBA-08-ESI ——— KB

2281: LOOKING DOWNSTREAM FROM LOCATION SBA-08-ESI ——— KB

2282: URS TEAM PREPARING TO CORE SBA-08-ESI ——— KB

2283: LOCATION SBA-08-ESI BEFORE CORING.

2284: LOCATION SBA-08-ESI DURING CORING

2285: CUTTING TUBE ON SEDIMENT SAMPLE SBA-08-ESI ——— KB

2286: PUMPING WATER OUT OF SEDIMENT SAMPLE SBA-08-ESI ——— KB

2287: REMOVING SEDIMENT CORE FROM WATER AT ——— KB

09/16/2014 SBA SHIPYARD KBERECZ

LOCATION SBA-08-ESI ——— KB

2288: CAPPING OF SAMPLE SBA-08-ESI ——— KB

2289: CAP ON SAMPLE SBA-08-ESI ——— KB

2290: CUTTING TUBE ON SEDIMENT CORE ——— KB SBA-08-ESI ——— KB

2291: COLLECTING PONAR SAMPLE AT LOCATION SBA-09C-ESI ——— KB

2292: COLLECTING PONAR SAMPLE AT SBA-09C-ESI ——— KB

2293: COLLECTING PONAR SAMPLE AT SBA-09-ESI

2294: SEDIMENT SAMPLE COLLECTED WITH PONAR AT SBA-09C-ESI ——— KB

2295: LOOKING EAST AT SAMPLE LOCATION SBA-09C-ESI ——— KB

2296: LOOKING SE AT SAMPLE LOCATION SBA-09C-ESI ——— KB

2297: URS TEAM PREPARING TO VIBRA CORE LOCATION SBA-07-ESI ——— KB

2298: LOCATION SBA-07-ESI BEFORE CORING

2299: LOOKING DOWNSTREAM FROM LOCATION SBA-07-ESI ——— KB

2300: LOOKING UPSTREAM FROM LOCATION SBA-07-ESI ——— KB

2301: URS TEAM PREPARING TO VIBRA CORE LOCATION SBA-07-ESI ——— KB

——— KB

09/16/2014 SBA SHIPYARD KBERECZ
2302: LOCATION SBA-07-ESI DURING VIBRA CORING ——— KB
2303: URS TEAM VIBRA CORING SBA-07-ESI
2304: URS TEAM CUTTING TUBE ON SBA-07-ESI
2305: URS TEAM PULLING SEDIMENT SAMPLE CORE SBA-07-ESI ——— KB
2306: PULLING CORE SBA-07-ESI FOR CAPPING.
2307: CAPPING SBA-07-ESI SEDIMENT CORE.
1815 END OF DAY DEPART SITE ——— KB

KB 09/16/2014

09/17/2014 SBA SHIPYARD KBERECZ
WEATHER: A CHANCE OF SHOWERS AND THUNDER-STORMS. MOSTLY CLOUDY, WITH A HIGH NEAR 88°F. CALM WIND ——— KB
0720 START BERECZ AND MOISAN MEET START BISCOCHO URS: TURK MOHLER EARLY AND EPA COOK AT SITE, SBA SHIPYARD. TEAM BEGINS DAILY SET UP OF EQUIPMENT AND SAMPLE PROCESSING AREA. URS-TURK AND EARLY DEPART TO LAUNCH BOAT FROM PUBLIC SITE.
0750 URS-MOHLER AND START BISCOCHO BEGIN TO PROCESS SAMPLES. ——— KB
0805 START, URS AND EPA ATTEND DAILY SAFETY MEETING ——— KB
0815 URS-MOHLER CUTS OPEN SEDIMENT CORE SBA-07-ESI. PIC 2308-URS MOHLER CUTTING UP OPEN CORE SBA-07-ESI (NORTH). PIC 2309 TEAM CUTTING CORE SBA-07-ESI OPEN (NORTH) PIC 2310-CORE SBA-07-ESI. PIC 2311 URS-MOISAN SAMPLING CORE SBA-07-ESI (SOUTH). SBA-07-ESI CORE DESCRIPTION: VERY SOFT, GRAY CLAY WITH VERY LITTLE SAND, AND ORGANIC WOODY DEBRIS. NO ODOR. NO STAINING OBSERVED ON CORE. ——— KB
0823 URS TEAM CUTS OPEN SEDIMENT CORE SBA-08-ESI. PIC 2312: CORE SBA-08-ESI (BOTTOM) ——— KB

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09/17/2014 SBA SHIPYARD KBERECZ

PIC 2313: TEAM CUTTING OPEN REST OF CORE SBA-08-ESI. PIC 2314: CORE SBA-08-ESI (TOP). CORE DESCRIPTION: VERY SOFT, MOIST DARK GRAY, SILTY CLAY WITH VERY LITTLE SAND, ORGANIC DEBRIS THROUGHOUT (MINOR) SLIGHT ROTTING ORGANIC SMELL IN TOP PORTION OF CORE. NO STAINING OBSERVED ON CORE. — KB

0920 START BERECZ, BISCOCHO AND URS-MOHLER, EARLY DEPART ON BOAT TO COLLECT SEDIMENT SAMPLES. URS-TURK DEPARTS IN JOHN BOAT TO SUPPORT SAMPLING TEAM — KB

0935 TEAM SETS UP TO SEDIMENT SAMPLE LOCATION SBA-06-ESI. WATER DEPTH IS ABOUT 12'-13' FEET. PIC 2315: CREW PREPARING TO VIBRA CORE LOCATION SBA-06-ESI (NW). PIC 2316: LOCATION SBA-06-ESI BEFORE CORING (W) PIC 2317: LOOKING NW FROM LOCATION SBA-06-ESI. PIC 2818® LOOKING SE FROM LOCATION SBA-06-ESI. PIC 2819® TEAM VIBRA CORING LOCATION SBA-06-ESI (W). PIC 2320: LOCATION SBA-06-ESI DURING VIBRA CORING. NO ODOR OR DISCOLORED WATER OBSERVED DURING CORING OPERATIONS. NO UNUSUAL OBSERVATIONS MADE WHILE CORING. SBA-06-ESI SEDIMENT SAMPLE IS COLLECTED ABOUT 150 FEET FROM RIVER IN INLET AREA AT

KB

09/17/2014 SBA SHIPYARD KBERECZ

SOURCE 8 ALONG RDB (APPROXIMATELY 40 FEET OFF RDB OF INLET) — KB

1050 TEAM SETS UP TO SEDIMENT SAMPLE LOCATION SBA-05-ESI. WATER DEPTH IS ABOUT 14 FEET. PIC 2321: LOOKING SE FROM LOCATION SBA-05-ESI. PIC 2322: LOOKING NE FROM LOCATION SBA-05-ESI. PIC 2323: LOCATION SBA-05-ESI BEFORE VIBRA CORING. PIC 2324: TEAM VIBRA CORING LOCATION SBA-05-ESI. PIC 2325: LOCATION SBA-05-ESI DURING VIBRA CORING. NO ODOR OR DISCOLORED WATER OBSERVED DURING CORING OPERATIONS. NO UNUSUAL OBSERVATIONS MADE WHILE CORING. SBA-05-ESI IS COLLECTED APPROXIMATELY 175 FEET FROM END OF INLET NEAR SOURCE 8 AT ABOUT CENTER OF CHANNEL. — KB

1125 PUBLIC BOATERS OBSERVED IN INLET WHILE COLLECTING CORE. PIC 2326: PUBLIC BOATERS OBSERVED IN INLET WHILE COLLECTING CORE (NW). PIC 2327: PUBLIC DEPARTING INLET (SE)

1210 RETURN TO SITE TO DROP OFF SEDIMENT CORES SBA-05-ESI AND SBA-06-ESI — KB

1325 TEAM IS SAMPLING CORES SBA-05-ESI AND SBA-06-ESI. CORE DESCRIPTION: WET, VERY

KB

09/17/2014 SBA SHIPYARD KBERECZ

SOFT, DARK GRAY CLAY, WITH LITTLE ORGANICS/ WOODY DEBRIS. BOTTOM OF CORE IS A GREEN CLAY (SBA-05-ESI). CORE SBA-06-ESI DESCRIPTION: WET, VERY SOFT DARK GRAY CLAY, WITH ORGANICS/WOODY DEBRIS. PIC 2328: CORE SBA-05-ESI. PIC 2329 AND PIC 2330: CORE SBA-06-ESI. ——— KB

1405 OBSERVE FISHERMAN JUST UPSTREAM FROM SITE. PIC 2331 (N). ——— KB

1407 TEAM SETS UP TO GET SEDIMENT CORE SBA-04-ESI. WATER DEPTH IS AROUND 10 FEET. PIC 2332: LOOKING WEST FROM SAMPLE LOCATION SBA-04-ESI. PIC 2333: LOOKING SOUTH FROM SAMPLE LOCATION SBA-04-ESI. PIC 2334: LOOKING SOUTH FROM SAMPLE LOCATION SBA-04-ESI. PIC 2335: SAMPLE LOCATION SBA-04-ESI DURING VIBRA CORING. NO ODOR AND NO DISCOLORED WATER OBSERVED WHILE CORING. PIC 2336: TEAM CUTTING TUBE ON SEDIMENT CORE. PIC 2337: PUMPING WATER FROM SEDIMENT SAMPLE SBA-04-ESI. PIC 2338: TEAM CAPPING CORE SAMPLE SBA-04-ESI

1520 RETURN TO SITE DUE TO WEATHER ——— KB

1550 PROCESS SEDIMENT CORE SBA-04-ESI. CORE DESCRIPTION: WET, GRAY CLAY WITH ORGANIC/ ——— KB

09/17/2014 SBA SHIPYARD KBERECZ

WOODY DEBRIS TRANSITIONING TO A STIFF GRAY CLAY WITH ORGANIC/WOODY DEBRIS. A SMALL, SLIGHT BAND OF SHEEN OBSERVED ABOUT MID-WAY OF SEDIMENT CORE. PIC 2339: PICTURE OF SBA-04-ESI ——— KB

1625 TEAM (START- BERECZ, MUJSAN; URS- EARLY) COLLECTS SEDIMENT GRAB SAMPLE SBA-10-ESI. DEFINITE HYDROCARBON AROMA TO GRAB SAMPLE. VISIBLE SHEEN OBSERVED ON SURFACE OF SEDIMENT. PIC 2341: TEAM GRABBING SAMPLE SBA-10-ESI. PIC 2342: SEDIMENT COLLECTED FROM SBA-10-ESI. PIC 2343: TEAM COLLECTING SBA-10-ESI.

1645 TEAM COLLECTS SEDIMENT GRAB SAMPLE SBA-11-ESI. DEFINITE HYDROCARBON AROMA TO GRAB SAMPLE. VISIBLE SHEEN OBSERVED ON WATER SURFACE. PIC 2344: SITE SBA-11-ESI. PIC 2345: SHEEN OBSERVED ON WATER SURFACE AT SBA-11-ESI. PIC 2346: SEDIMENT SAMPLE SBA-11-ESI. PIC 2347: SHEEN OBSERVED ON WATER SURFACE AFTER COLLECTING SBA-11-ESI. ——— KB

1703 TEAM COLLECTS SEDIMENT GRAB SAMPLE SBA-12-ESI. ROTTING ORGANIC DEBRIS AROMA TO GRAB SAMPLE. NO SHEEN OBSERVED. PIC 2348 ——— KB

09/17/2014 SBA SHIPYARD KBERECZ

SAMPLE LOCATION SITE SBA-12-ESI. PIC 2349. TEAM COLLECTING SEDIMENT SAMPLE SBA-12-ESI ——— KB

1730 END OF DAY DEPART SITE ——— KB

KB 09/17/2014

09/18/2014 SBA SHIPYARD KBERECZ

WEATHER SHOWERS AND THUNDERSTORMS LIKELY CLOUDY WITH A HIGH NEAR 82°F CALM WIND BECOMING SOUTH EAST AROUND 5 MPH ——— KB

0710 START BERECZ AND MUISAN MEET START BISCOCHO. URS TURK, MUHLER AND EARLY AT SITE SBA SHIPYARD. TEAM BEGINS DAILY SET UP OF SAMPLE PROCESSING AREA AND EQUIPPING BOAT FOR DAILY SAMPLING. ——— KB

0745 START AND URS ATTEND DAILY SAFETY MEETING GIVEN BY URS-EARLY. ——— KB

0805 START BERECZ AND URS-MUHLER AND EARLY DEPART ON BOAT TO COLLECT SEDIMENT SAMPLES. URS-TURK DEPARTS IN JOHN BOAT TO SUPPORT SAMPLING TEAM. ——— KB

0810 TEAM SETS UP TO TAKE SEDIMENT SAMPLE SBA-03-ESI. WATER DEPTH IS ABOUT 7-8 FEET DEEP. PIC 2351. SLIGHT SHEEN OBSERVED WHILE PLACING PIPE IN SEDIMENT TO VIBRA CORE LOCATION SBA-03-ESI. PIC 2352-2358 SHEEN OBSERVED AROUND VIBRA CORE BOAT WHILE WORKING. PIC 2359 SHEEN OBSERVED WHILE VIBRA CORING SEDIMENT SAMPLE SBA-03-ESI. PIC 2360 TEAM VIBRA CORING SBA-03-ESI. PIC 2361 LOOKING DOWNSTREAM (S) FROM SAMPLE LOCATION SBA-03-ESI. PIC 2362 LOOKING UPST- ——— KB

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09/18/2014 SBA SHIPYARD KBERECZ

REAM (N) FROM SAMPLE LOCATION SBA-03-ESI
0940 TEAM SETS UP TO TAKE SEDIMENT SAMPLE AT SBA-02-ESI. WATER DEPTH IS ABOUT 13 FEET. PIC 2363: SAMPLE LOCATION SBA-02-ESI. PIC 2364: LOOKING SE FROM SAMPLE LOCATION SBA-02-ESI. PIC 2365: LOOKING NW FROM SAMPLE LOCATION SBA-02-ESI. NO ODOR, NO DISCOLORED WATER OBSERVED WHILE CORING SAMPLE LOCATION. KB

1050 TEAM SETS UP TO COLLECT SEDIMENT SAMPLE SBA-01-ESI. WATER DEPTH IS ABOUT 6-7 FEET. PIC 2366: SAMPLE LOCATION SBA-01-ESI. PIC 2367 LOOKING SOUTH FROM SAMPLE LOCATION SBA-01-ESI. PIC 2368 LOOKING NORTH FROM SAMPLE LOCATION SBA-01-ESI. NO ODOR, NO DISCOLORED WATER OBSERVED WHILE CORING SAMPLE LOCATION KB

1235 TEAM BEGINS TO PROCESS CORES. SBA-03-ESI SAMPLE DESCRIPTION: WET, VERY MOIST GRAY CLAY WITH SIGNIFICANT AMOUNTS OF ORGANIC/WOODY DEBRIS. SLIGHT HYDROCARBON AROMA TO CORE WHILE SAMPLING. PIC 2369: PHOTO OF CORE SBA-03-ESI. SBA-01-ESI CORE DESCRIPTION: WET, VERY MOIST, GRAY SANDY CLAY WITH GRAVEL TRANSITIONING TO A TAN VERY MOIST KB

09/18/2014 SBA SHIPYARD KBERECZ

SANDY CLAY, LITTLE GRAVEL. PIC 2370 PHOTO OF CORE SBA-01-ESI. SBA-02-ESI CORE DESCRIPTION: MOIST, GRAY CLAY WITH SIGNIFICANT AMOUNTS OF ORGANIC/WOODY DEBRIS. PIC 2371: PHOTO OF CORE SBA-02-ESI. IDW SEDIMENT WASTE DESCRIPTION: A MIXTURE OF MOIST GRAY CLAY WITH LITTLE SAND AND GRAVEL, SIGNIFICANT AMOUNTS OF ORGANICS/WOODY DEBRIS. KB

1415 URS EARLY AND MOHLER COLLECT GRAB SEDIMENT SAMPLE SBA-16-ESI IN WETLAND-EAST.

— Late Entry - NBiscocho. 9/18/2014 —

1336 Photo SBA-ESI_16-A: sample set 1 direction West at SBA ESI-16. Photographer (P) MMohler, Witness (W) BEarly.

1356 Photo SBA-ESI-16-B: sample set 2 @ SBA-ESI-16 direction North, view of trenasse (small channel in the cypress-tupelo swamp), although the channel was inundated, you can still see the line void of trees which is the channel @ low water level. (P) MMohler (W) BEarly.

1356 Photo SBA-ESI-16C: sample set 2 @ SBA-ESI-16 direction South, view of trenasse & Maurepas River in the background. (P) MMohler (W) BEarly.

1358 Photo SBA-ESI-16D: sample set 2 @ SBA-ESI-16 →

9/18/14 SBA Shipyard N. Bisracko

direction NE, view of sample collection near the edge of the transect.

SAM (EPA) Brenda Cook instructed START to go with Leevac Representative on site, Gilbert Waldrep, to identify the property boundary of Leevac vs. Smallhall Property. The following are the GPS coordinates for the boundary:

30°09'42.05" N	30°09'42.90" N
92°36'43.18" W	92°36'42.28" W
30°09'44.81" N	30°09'46.25" N
92°36'52.53" W	92°36'56.36" W

Note: Leevac (North side)
Smallhall (South side)

START [initials]

START [initials]

Appendix D

Chain-of-Custody Forms

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Page 1 of 1

USEPA

DateShipped: 9/17/2014
CarrierName: FedEx
AirbillNo: 771189623670

CHAIN OF CUSTODY RECORD
Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 404-783-4875

No: 6-091714-143001-0007
Cooler #: 1
Lab: EPA Region 6
Lab Phone: 281-983-2137

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-05SD	SBA-ESI-05	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N
	SBA-ESI-06SD	SBA-ESI-06	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N
	SBA-ESI-07SD	SBA-ESI-07	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	Y
	SBA-ESI-08SD	SBA-ESI-08	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-09SD	SBA-ESI-09	Semivolatiles (SVOAs)	Sediment	9/16/2014	1	8 oz. jar	4 C	N
	SBA-ESI-80SD	SBA-ESI-08	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
6	[signature]	9/17/14	FedEx	9/17/14	16:30				[signature]	9/18/14	9:30

TempBlank=3°

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

USEPA | **CHAIN OF CUSTODY RECORD** | **No: 6-091814-135602-0009**

DateShipped: 9/18/2014
CarrierName: FedEx
AirbillNo: 771200274299

Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 4047834875

Cooler #: 3
Lab: EPA Region 6
Lab Phone: 281-983-2137

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-01SD	SBA-ESI-01	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-02SD	SBA-ESI-02	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-03SD	SBA-ESI-03	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-04SD	SBA-ESI-04	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-10SD	SBA-ESI-10	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-11SD	SBA-ESI-11	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-12SD	SBA-ESI-12	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-13MW	SBA-ESI-13	Semivolatiles (SVOAs)	Ground Water	9/17/2014	4	1 liter amber	4 C	Y
	SBA-ESI-16SD	SBA-ESI-16	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-30SD	SBA-ESI-03	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-31MW	SBA-ESI-13	Semivolatiles (SVOAs)	Ground Water	9/17/2014	2	1 liter amber	4 C	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
15	[signature]	9/18/14	FedEx	9/18/14	1700				[signature]	9/19/14	10:10

Temp Blank = 4°C

USEPA
DateShipped: 9/18/2014
CarrierName: FedEx
AirbillNo: 771200019315

CHAIN OF CUSTODY RECORD
Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 404-783-4875

No: 6-091814-114226-0008
Cooler #: 2
Lab: ALS Environmental
Lab Phone: 281-530-5656

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-14	SBA-ESI-14	Dioxins / Furans	Waste soil	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-15	SBA-ESI-15	Dioxins / Furans	Waste	9/17/2014	1	8 oz. jar	4 C	N

E1401160 5
Dynamac Corporation
Start Region VI / SBA Shipyard

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
2	[signature]	9/18/14	FEDEX	9/18/14	1700						
			[signature]	9/19/14	1030						

Appendix E

Global Positioning System (GPS) Coordinates

of Sample Locations

Appendix E
Global Positioning System (GPS) Coordinates of Sample Locations

locationID	Longitude	Latitude	Matrix	date	Max PDOP	Max HDOP	Rcvr Type	GPS Date
SBA-ESI-01	-92.61016479	30.16566767	Sediment (Mermentau River)	18-Sep-14	5.7707977	3.094921112	GeoExplorer 3	18-Sep-14
SBA-ESI-02	-92.61489526	30.16576993	Sediment (Mermentau River)	18-Sep-14	5.194387	2.047827482	GeoExplorer 3	18-Sep-14
SBA-ESI-03	-92.60986706	30.16296053	Sediment (Mermentau River)	18-Sep-14	4.8590007	2.416027784	GeoExplorer 3	18-Sep-14
SBA-ESI-04	-92.60954066	30.16231114	Sediment (Mermentau River)	17-Sep-14	3.6108584	1.642870426	GeoExplorer 3	17-Sep-14
SBA-ESI-05	-92.61089434	30.16089339	Sediment (Mermentau River)	17-Sep-14	4.30864	2.139667749	GeoExplorer 3	17-Sep-14
SBA-ESI-06	-92.60959883	30.16033105	Sediment (Mermentau River)	17-Sep-14	4.5654907	1.530243516	GeoExplorer 3	17-Sep-14
SBA-ESI-07	-92.60827953	30.15924714	Sediment (Mermentau River)	16-Sep-14	4.5600991	2.027312756	GeoExplorer 3	16-Sep-14
SBA-ESI-08	-92.61023528	30.15722516	Sediment (Mermentau River)	16-Sep-14	4.8607111	3.716674328	GeoExplorer 3	16-Sep-14
SBA-ESI-09	-92.6108347	30.1562604	Sediment (Mermentau River)	16-Sep-14	4.7475028	2.424329042	GeoExplorer 3	16-Sep-14
SBA-ESI-10	-92.612292	30.159719	Sediment (wetland)	17-Sep-14	N/A	N/A	GNSS Global GPS	17-Sep-14
SBA-ESI-11	-92.611611	30.160492	Sediment (wetland)	17-Sep-14	N/A	N/A	GNSS Global GPS	17-Sep-14
SBA-ESI-12	-92.609101	30.159242	Sediment (wetland)	17-Sep-14	N/A	N/A	GNSS Global GPS	17-Sep-14
SBA-ESI-13	-92.61209	30.1596	Groundwater (Monitor Well #5)	18-Sep-14	N/A	N/A	GNSS Global GPS	18-Sep-14
SBA-ESI-14	-92.6116672	30.16068315	Waste (stained soil)	17-Sep-14	2.838136	1.170274019	GeoExplorer 3	17-Sep-14
SBA-ESI-15	-92.61106444	30.160473	Waste (buried barge)	17-Sep-14	3.3062468	1.483568192	GeoExplorer 3	17-Sep-14
SBA-ESI-16	-92.609561	30.158366	Sediment (wetland)	18-Sep-14	N/A	N/A	GNSS Global GPS	18-Sep-14
SBA-ESI-30	-92.60986706	30.16296053	Sediment, Duplicate of SBA-ESI-03	18-Sep-14	4.8590007	2.416027784	GeoExplorer 3	18-Sep-14
SBA-ESI-31	-92.61209	30.1596	Groundwater, Duplicate of SBA-ESI-13	18-Sep-14	N/A	N/A	GNSS Global GPS	18-Sep-14
SBA-ESI-80	-92.61023528	30.15722516	Sediment, Duplicate of SBA-ESI-08	16-Sep-14	4.8607111	3.716674328	GeoExplorer 3	16-Sep-14

Appendix F

Access Agreements

LEEVAC
Shipyards, LLC

RECEIVED
13 MAY -9 PM 1:40
SUPERFUND DIV.
DIRECTOR'S OFC.

United Stated Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

CONSENT FOR ACCESS TO PROPERTY

Address/Description of Property:

9040 Castex Landing Rd
Jennings, LA 70546

I consent to officers, employees, contractors and authorized representatives of the United states Environmental Protection Agency ("EPA") entering and having access to the property (described above) for the following purposes:

1. The taking of such soil, water, air and/or other samples upon the property as may be determined to be necessary, including sampling for assessment purposes. Any sampling conducted inside the facility will be coordinated with the property owner.

2. The sampling of the surface and groundwater upon the property, including the drilling of holes and installation of monitoring wells for subsurface investigation.

3. The sampling of any solids or liquids stored or disposed of on the property, or any containers, tanks, vats, materials or other items suspected to contain hazardous substances located upon the property, including the removal of such materials if necessary to perform laboratory testing.

The EPA actions described in this document are undertaken in accordance with the response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9601 *et seq.*

This consent is given with the understanding and on the condition that the EPA commits to provide contemporaneous split samples of any sampling conducted at the site and that the EPA agrees to provide copies of any analytical results as those results become available.

This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind. I certify that I have the authority to grant this permission as the owner or authorized representative of the owner of the property described above. The actions authorized in this letter will be conducted through the EPA's agent, Dynamac Corporation, which will coordinate the date and time of sampling with Leevac representatives so as to minimize any disruption of ongoing activities at the site.

May 7 2013
Date

By: [signature]
Signature

Christian Vaccari
Print Name

337-824-2210
Contact Phone Number

CC: Richard A. Curry, Esquire
McGlinchey Stafford

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TEXAS 75202-2733

CONSENT FOR ACCESS TO PROPERTY

Address/Description of Property:

9040 Castex Landing Rd
Jennings, LA 70546

I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency ("EPA") entering and having continued access to the property (described above) for the following purposes:

1. The taking of such soil, water, air, and/or other samples upon the property as may be determined to be necessary, including sampling for assessment purposes. Any sampling conducted inside the home will be coordinated with the property owner.

2. The sampling of surface and groundwater upon the property, including the drilling of holes and installation of monitoring wells for subsurface investigation.

3. The sampling of any solids or liquids stored or disposed of on the property, or any containers, tanks, vats, materials or other items suspected to contain hazardous substances located upon the property, including the removal of such materials if necessary to perform laboratory testing.

The EPA actions described in this document are undertaken in accordance with the response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9601 *et seq.*
This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind. I certify that I have the authority to grant this permission as the owner or authorized representative of the owner of the property described above.

August 1, 2013
Date

By: Suzanne S Cornelius
Signature

SUZANNE S. CORNELIUS
Print name

713-663-7588
Contact Phone Number

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TEXAS 75202-2733

April 25, 2013

Louis & Suzanne Smailhall
6430 Buffalo Speedway
Houston, TX 77005

Dear Louis & Suzanne Smailhall:

The U.S. Environmental Protection Agency (EPA) is conducting an investigation into the potential contamination from the SBA Shipyard that was located at 9040 Castex Landing Rd, Jennings, LA 70546 under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 *et seq.* The purpose of this letter is to request permission for officers, employees, contractors, and authorized representatives of the EPA to enter your property and install borings and collect soil and groundwater samples as part of its investigation. The EPA is planning on collecting these samples during the week of June 17, 2013. The boring will be plugged after sampling according to Louisiana Department of Transportation requirements.

Attached to this letter is a consent form giving EPA access to collect the samples. Please complete this form if you agree to provide EPA access to your property. Also, if you would like a copy of the analytical results from the samples collected at your property, then please be sure to check the appropriate space on the consent form. Representatives of Dynamac Corporation (Dynamac) will be conducting the investigation as EPA's Contractor. Personnel from Dynamac will be contacting you to determine if you agree to provide access and to coordinate the date and time of the sampling activities at your property.

Thank you very much for you cooperation in this matter. If you have any questions, please contact me at 214-665-7436.

Sincerely yours,

Brenda Nixon Cook

Brenda Nixon Cook
Site Assessment Manager
EPA Region 6

Appendix G

EPA Houston Analytical Data

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6 Laboratory
Environmental Services Branch
10625 Fallstone Road, Houston, TX 77099
Phone: (281)983-2100 Fax: (281)983-2248

Final Analytical Report

Site Name ---------------------SBA Shipyard

Sample Collection Date(s)-- 09/16/14 - 09/18/14

Contact------------------------- Brenda Cook (6SF-RA)

Report Date-------------------- 10/23/14

Project #----------------------- 14SF149

Work Order(s)----------------- 1409028
1409034

Analyses included in this report:

ABN CLP Routine List	Solids, Dry Weight

Report Narrative

Semi-volatile liquids:

B4I2202: One RPD fails in the MS/MSD but should not affect the samples.

Semi-volatile solids:

Carbazole, where reported, is qualified as estimated due to chromatography problems with calibration.

Dibenz(a,h)anthracene is qualified as estimated in sample 1409034-06 due to failure of the associated internal standard area.

The surrogate 2,4,6-Tribromophenol is qualified as estimated in sample 1409028-04 because the value reported is outside the calibration range. No dilution was performed.

Standard procedures for quality assurance and quality control were followed in the analysis and reporting of the sample results. The results apply only to the samples tested. This final report should only be reproduced in full.

Reporting limits are adjusted for sample size and matrix interference.

Report Approvals:

Richard McMillin	Marvelyn Humphrey
Region 6 Laboratory Deputy Branch Chief	Acting Region 6 Laboratory Branch Chief

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6 Environmental Services Branch Laboratory

10625 Fallstone Road
Houston, Texas 77099

Sample Receipt and Disposal

Site Name: SBA Shipyard

Project Number: 14SF149

Data Management Coordinator: Christy Warren

/ /

Data Management Coordinator Signature

Date

Date Transmitted: _____/_____/_______

Please have the U.S. EPA Project Manager/Officer call the Data Management Coordinator at 3-2137 for any comments or questions.

Please sign and date this form below and return it with any comments to:

Christy Warren
Data Management Coordinator
Region 6 Laboratory
6MD-HS

____/_____/_______

Received by and Date

Comments:

The laboratory routinely disposes of samples 90 days after all analyses have been completed. If you have a need to hold these samples in custody longer than 90 days, please sign below.

____ ___________________

Signature

Date

Please provide a reason for holding:

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Sample Type	Date Collected	Date Received
SBA-ESI-05SD	1409028-01	Solid	9/17/14 13:40	09/18/14 09:50
SBA-ESI-06SD	1409028-02	Solid	9/17/14 13:50	09/18/14 09:50
SBA-ESI-07SD	1409028-03	Solid	9/17/14 8:19	09/18/14 09:50
SBA-ESI-08SD	1409028-04	Solid	9/17/14 8:30	09/18/14 09:50
SBA-ESI-09SD	1409028-05	Solid	9/16/14 16:00	09/18/14 09:50
SBA-ESI-80SD	1409028-06	Solid	9/17/14 8:40	09/18/14 09:50
SBA-ESI-01SD	1409034-01	Solid	9/18/14 12:49	09/19/14 10:10
SBA-ESI-02SD	1409034-02	Solid	9/18/14 13:05	09/19/14 10:10
SBA-ESI-03SD	1409034-03	Solid	9/18/14 12:36	09/19/14 10:10
SBA-ESI-04SD	1409034-04	Solid	9/17/14 15:50	09/19/14 10:10
SBA-ESI-10SD	1409034-05	Solid	9/17/14 16:35	09/19/14 10:10
SBA-ESI-11SD	1409034-06	Solid	9/17/14 16:47	09/19/14 10:10
SBA-ESI-12SD	1409034-07	Solid	9/17/14 17:03	09/19/14 10:10
SBA-ESI-13MW	1409034-08	Liquid	9/17/14 9:52	09/19/14 10:10
SBA-ESI-16SD	1409034-09	Solid	9/18/14 14:15	09/19/14 10:10
SBA-ESI-30SD	1409034-10	Solid	9/17/14 12:42	09/19/14 10:10
SBA-ESI-31MW	1409034-11	Liquid	9/17/14 10:00	09/19/14 10:10

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-01 **Station ID: SBA-ESI-05SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.287g
%Solids: 40.04
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	12,700		69.7	29-100	09/23/14	09/24/14
Phenol-d5	13,400		73.7	37-100	"	"
2-Chlorophenol-d4	13,000		71.6	33-100	"	"
1,2-Dichlorobenzene-d4	6,590		54.3	28-100	"	"
Nitrobenzene-d5	8,250		68.0	28-100	"	"
2-Fluorobiphenyl	8,270		68.1	37-110	"	"
2,4,6-Tribromophenol	14,700		80.6	41-137	"	"
Terphenyl-d14	9,520		78.4	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	**1,110**		486	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		486	"	"	"
Acetophenone (98-86-2)	U		1,210	"	"	"
Anthracene (120-12-7)	U		486	"	"	"
Atrazine (1912-24-9)	U		1,210	"	"	"
Benzaldehyde (100-52-7)	U		1,210	"	"	"
Benzoic acid (65-85-0)	U		2,430	"	"	"
Benzo (a) anthracene (56-55-3)	**2,120**		1,210	"	"	"
Benzo (a) pyrene (50-32-8)	**1,830**		1,210	"	"	"
Benzo (b) fluoranthene (205-99-2)	**1,940**		1,210	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,210	"	"	"
Benzo (k) fluoranthene (207-08-9)	**1,560**		1,210	"	"	"
Benzyl alcohol (100-51-6)	U		1,210	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,210	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,210	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,210	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,210	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,210	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,210	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,210	"	"	"
Carbazole (86-74-8)	U		1,210	"	"	"
Caprolactam (105-60-2)	U		1,210	"	"	"
4-Chloroaniline (106-47-8)	U		1,210	"	"	"

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-01 **Station ID: SBA-ESI-05SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.287g
%Solids: 40.04
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,210	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,210	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,210	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,210	"	"	"
Chrysene (218-01-9)	**3,840**		1,210	"	"	"
Dibenzofuran (132-64-9)	U		1,210	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,210	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,210	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,210	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,210	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,210	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,210	"	"	"
Diethyl phthalate (84-66-2)	U		1,210	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,210	"	"	"
Dimethyl phthalate (131-11-3)	U		1,210	"	"	"
2,4-Dinitrophenol (51-28-5)	U		4,860	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,210	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,210	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		4,860	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,210	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,210	"	"	"
Fluoranthene (206-44-0)	**4,630**		486	"	"	"
Fluorene (86-73-7)	**1,480**		486	"	"	"
Hexachlorobenzene (118-74-1)	U		1,210	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,210	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,210	"	"	"
Hexachloroethane (67-72-1)	U		1,210	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,210	"	"	"
Isophorone (78-59-1)	U		1,210	"	"	"
2-Methylnaphthalene (91-57-6)	U		486	"	"	"
2-Methylphenol (95-48-7)	U		1,210	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,210	"	"	"
Naphthalene (91-20-3)	U		486	"	"	"
2-Nitroaniline (88-74-4)	U		1,940	"	"	"
3-Nitroaniline (99-09-2)	U		1,940	"	"	"

Environmental Protection Agency

Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-01 **Station ID: SBA-ESI-05SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.287g
%Solids: 40.04

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,940	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,210	"	"	"
2-Nitrophenol (88-75-5)	U		1,210	"	"	"
4-Nitrophenol (100-02-7)	U		3,160	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,210	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,210	"	"	"
Pentachlorophenol (87-86-5)	U		1,210	"	"	"
Phenanthrene (85-01-8)	**4,850**		486	"	"	"
Phenol (108-95-2)	U		1,210	"	"	"
Pyrene (129-00-0)	**3,990**		486	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,210	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,210	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,210	"	"	"

DSH

Environmental Protection Agency
Region 6 Laboratory
10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-02 **Station ID: SBA-ESI-06SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.304g
%Solids: 45.14

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	12,100		75.2	29-100	09/23/14	09/24/14
Phenol-d5	12,400		77.1	37-100	"	"
2-Chlorophenol-d4	12,400		76.8	33-100	"	"
1,2-Dichlorobenzene-d4	7,000		65.1	28-100	"	"
Nitrobenzene-d5	7,770		72.3	28-100	"	"
2-Fluorobiphenyl	7,780		72.3	37-110	"	"
2,4,6-Tribromophenol	13,800		85.9	41-137	"	"
Terphenyl-d14	8,570		79.7	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		430	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		430	"	"	"
Acetophenone (98-86-2)	U		1,080	"	"	"
Anthracene (120-12-7)	U		430	"	"	"
Atrazine (1912-24-9)	U		1,080	"	"	"
Benzaldehyde (100-52-7)	U		1,080	"	"	"
Benzoic acid (65-85-0)	U		2,150	"	"	"
Benzo (a) anthracene (56-55-3)	**1,390**		1,080	"	"	"
Benzo (a) pyrene (50-32-8)	**1,460**		1,080	"	"	"
Benzo (b) fluoranthene (205-99-2)	**1,740**		1,080	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,080	"	"	"
Benzo (k) fluoranthene (207-08-9)	**1,350**		1,080	"	"	"
Benzyl alcohol (100-51-6)	U		1,080	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,080	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,080	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,080	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,080	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,080	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,080	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,080	"	"	"
Carbazole (86-74-8)	U		1,080	"	"	"
Caprolactam (105-60-2)	U		1,080	"	"	"
4-Chloroaniline (106-47-8)	U		1,080	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-02 **Station ID: SBA-ESI-06SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.304g
%Solids: 45.14
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,080	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,080	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,080	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,080	"	"	"
Chrysene (218-01-9)	**2,260**		1,080	"	"	"
Dibenzofuran (132-64-9)	U		1,080	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,080	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,080	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,080	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,080	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,080	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,080	"	"	"
Diethyl phthalate (84-66-2)	U		1,080	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,080	"	"	"
Dimethyl phthalate (131-11-3)	U		1,080	"	"	"
2,4-Dinitrophenol (51-28-5)	U		4,300	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,080	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,080	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		4,300	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,080	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,080	"	"	"
Fluoranthene (206-44-0)	**2,890**		430	"	"	"
Fluorene (86-73-7)	U		430	"	"	"
Hexachlorobenzene (118-74-1)	U		1,080	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,080	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,080	"	"	"
Hexachloroethane (67-72-1)	U		1,080	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,080	"	"	"
Isophorone (78-59-1)	U		1,080	"	"	"
2-Methylnaphthalene (91-57-6)	U		430	"	"	"
2-Methylphenol (95-48-7)	U		1,080	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,080	"	"	"
Naphthalene (91-20-3)	U		430	"	"	"
2-Nitroaniline (88-74-4)	U		1,720	"	"	"
3-Nitroaniline (99-09-2)	U		1,720	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-02 **Station ID: SBA-ESI-06SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.304g
%Solids: 45.14

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,720	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,080	"	"	"
2-Nitrophenol (88-75-5)	U		1,080	"	"	"
4-Nitrophenol (100-02-7)	U		2,800	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,080	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,080	"	"	"
Pentachlorophenol (87-86-5)	U		1,080	"	"	"
Phenanthrene (85-01-8)	**1,530**		430	"	"	"
Phenol (108-95-2)	U		1,080	"	"	"
Pyrene (129-00-0)	**2,430**		430	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,080	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,080	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,080	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-03 **Station ID: SBA-ESI-07SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.455g
%Solids: 75.90
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	6,620		70.1	29-100	09/23/14	09/25/14
Phenol-d5	7,030		74.4	37-100	"	"
2-Chlorophenol-d4	6,860		72.6	33-100	"	"
1,2-Dichlorobenzene-d4	3,760		59.7	28-100	"	"
Nitrobenzene-d5	4,390		69.7	28-100	"	"
2-Fluorobiphenyl	4,620		73.4	37-110	"	"
2,4,6-Tribromophenol	7,480		79.2	41-137	"	"
Terphenyl-d14	5,400		85.6	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		252	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	U		252	"	"	"
Acetophenone (98-86-2)	U		630	"	"	"
Anthracene (120-12-7)	U		252	"	"	"
Atrazine (1912-24-9)	U		630	"	"	"
Benzaldehyde (100-52-7)	U		630	"	"	"
Benzoic acid (65-85-0)	U		1,260	"	"	"
Benzo (a) anthracene (56-55-3)	U		630	"	"	"
Benzo (a) pyrene (50-32-8)	U		630	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		630	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		630	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		630	"	"	"
Benzyl alcohol (100-51-6)	U		630	"	"	"
1,1'-Biphenyl (92-52-4)	U		630	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		630	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		630	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		630	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		630	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		630	"	"	"
Butyl benzyl phthalate (85-68-7)	U		630	"	"	"
Carbazole (86-74-8)	U		630	"	"	"
Caprolactam (105-60-2)	U		630	"	"	"
4-Chloroaniline (106-47-8)	U		630	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-03 **Station ID: SBA-ESI-07SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.455g
%Solids: 75.90
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		630	1	09/23/14	09/25/14
2-Chlorophenol (95-57-8)	U		630	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		630	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		630	"	"	"
Chrysene (218-01-9)	U		630	"	"	"
Dibenzofuran (132-64-9)	U		630	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		630	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		630	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		630	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		630	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		630	"	"	"
2,4-Dichlorophenol (120-83-2)	U		630	"	"	"
Diethyl phthalate (84-66-2)	U		630	"	"	"
2,4-Dimethylphenol (105-67-9)	U		630	"	"	"
Dimethyl phthalate (131-11-3)	U		630	"	"	"
2,4-Dinitrophenol (51-28-5)	U		2,520	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		630	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		630	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		2,520	"	"	"
Di-n-butyl phthalate (84-74-2)	U		630	"	"	"
Di-n-octyl phthalate (117-84-0)	U		630	"	"	"
Fluoranthene (206-44-0)	U		252	"	"	"
Fluorene (86-73-7)	U		252	"	"	"
Hexachlorobenzene (118-74-1)	U		630	"	"	"
Hexachlorobutadiene (87-68-3)	U		630	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		630	"	"	"
Hexachloroethane (67-72-1)	U		630	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		630	"	"	"
Isophorone (78-59-1)	U		630	"	"	"
2-Methylnaphthalene (91-57-6)	U		252	"	"	"
2-Methylphenol (95-48-7)	U		630	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		630	"	"	"
Naphthalene (91-20-3)	U		252	"	"	"
2-Nitroaniline (88-74-4)	U		1,010	"	"	"
3-Nitroaniline (99-09-2)	U		1,010	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-03 **Station ID: SBA-ESI-07SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.455g
%Solids: 75.90

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,010	1	09/23/14	09/25/14
Nitrobenzene (98-95-3)	U		630	"	"	"
2-Nitrophenol (88-75-5)	U		630	"	"	"
4-Nitrophenol (100-02-7)	U		1,640	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		630	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		630	"	"	"
Pentachlorophenol (87-86-5)	U		630	"	"	"
Phenanthrene (85-01-8)	U		252	"	"	"
Phenol (108-95-2)	U		630	"	"	"
Pyrene (129-00-0)	U		252	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		630	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		630	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		630	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-04 **Station ID: SBA-ESI-08SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.418g
%Solids: 35.36
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	24,700		60.6	29-100	09/23/14	09/24/14
Phenol-d5	27,100		66.5	37-100	"	"
2-Chlorophenol-d4	25,400		62.5	33-100	"	"
1,2-Dichlorobenzene-d4	12,600		46.5	28-100	"	"
Nitrobenzene-d5	16,000		58.9	28-100	"	"
2-Fluorobiphenyl	16,200		59.8	37-110	"	"
2,4,6-Tribromophenol	32,800	J	80.6	41-137	"	"
Terphenyl-d14	19,300		71.0	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		543	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		543	"	"	"
Acetophenone (98-86-2)	U		1,360	"	"	"
Anthracene (120-12-7)	U		543	"	"	"
Atrazine (1912-24-9)	U		1,360	"	"	"
Benzaldehyde (100-52-7)	U		1,360	"	"	"
Benzoic acid (65-85-0)	U		2,710	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,360	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,360	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,360	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,360	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,360	"	"	"
Benzyl alcohol (100-51-6)	U		1,360	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,360	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,360	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,360	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,360	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,360	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,360	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,360	"	"	"
Carbazole (86-74-8)	U		1,360	"	"	"
Caprolactam (105-60-2)	U		1,360	"	"	"
4-Chloroaniline (106-47-8)	U		1,360	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-04 **Station ID: SBA-ESI-08SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.418g
%Solids: 35.36

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,360	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,360	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,360	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,360	"	"	"
Chrysene (218-01-9)	U		1,360	"	"	"
Dibenzofuran (132-64-9)	U		1,360	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,360	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,360	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,360	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,360	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,360	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,360	"	"	"
Diethyl phthalate (84-66-2)	U		1,360	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,360	"	"	"
Dimethyl phthalate (131-11-3)	U		1,360	"	"	"
2,4-Dinitrophenol (51-28-5)	U		5,430	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,360	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,360	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		5,430	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,360	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,360	"	"	"
Fluoranthene (206-44-0)	U		543	"	"	"
Fluorene (86-73-7)	U		543	"	"	"
Hexachlorobenzene (118-74-1)	U		1,360	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,360	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,360	"	"	"
Hexachloroethane (67-72-1)	U		1,360	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,360	"	"	"
Isophorone (78-59-1)	U		1,360	"	"	"
2-Methylnaphthalene (91-57-6)	U		543	"	"	"
2-Methylphenol (95-48-7)	U		1,360	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,360	"	"	"
Naphthalene (91-20-3)	U		543	"	"	"
2-Nitroaniline (88-74-4)	U		2,170	"	"	"
3-Nitroaniline (99-09-2)	U		2,170	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-04 **Station ID: SBA-ESI-08SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.418g
%Solids: 35.36

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		2,170	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,360	"	"	"
2-Nitrophenol (88-75-5)	U		1,360	"	"	"
4-Nitrophenol (100-02-7)	U		3,530	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,360	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,360	"	"	"
Pentachlorophenol (87-86-5)	U		1,360	"	"	"
Phenanthrene (85-01-8)	U		543	"	"	"
Phenol (108-95-2)	U		1,360	"	"	"
Pyrene (129-00-0)	U		543	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,360	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,360	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,360	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-05 **Station ID: SBA-ESI-09SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/16/14
Sample Wt: 10.697g
%Solids: 60.85

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	5,360		46.5	29-100	09/23/14	09/25/14
Phenol-d5	6,120		53.1	37-100	"	"
2-Chlorophenol-d4	5,730		49.7	33-100	"	"
1,2-Dichlorobenzene-d4	2,700		35.2	28-100	"	"
Nitrobenzene-d5	3,470		45.2	28-100	"	"
2-Fluorobiphenyl	4,240		55.2	37-110	"	"
2,4,6-Tribromophenol	7,350		63.7	41-137	"	"
Terphenyl-d14	6,280		81.8	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		307	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	U		307	"	"	"
Acetophenone (98-86-2)	U		768	"	"	"
Anthracene (120-12-7)	U		307	"	"	"
Atrazine (1912-24-9)	U		768	"	"	"
Benzaldehyde (100-52-7)	U		768	"	"	"
Benzoic acid (65-85-0)	U		1,540	"	"	"
Benzo (a) anthracene (56-55-3)	U		768	"	"	"
Benzo (a) pyrene (50-32-8)	U		768	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		768	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		768	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		768	"	"	"
Benzyl alcohol (100-51-6)	U		768	"	"	"
1,1'-Biphenyl (92-52-4)	U		768	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		768	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		768	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		768	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		768	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		768	"	"	"
Butyl benzyl phthalate (85-68-7)	U		768	"	"	"
Carbazole (86-74-8)	U		768	"	"	"
Caprolactam (105-60-2)	U		768	"	"	"
4-Chloroaniline (106-47-8)	U		768	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-05 **Station ID: SBA-ESI-09SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/16/14
Sample Wt: 10.697g
%Solids: 60.85

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		768	1	09/23/14	09/25/14
2-Chlorophenol (95-57-8)	U		768	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		768	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		768	"	"	"
Chrysene (218-01-9)	U		768	"	"	"
Dibenzofuran (132-64-9)	U		768	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		768	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		768	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		768	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		768	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		768	"	"	"
2,4-Dichlorophenol (120-83-2)	U		768	"	"	"
Diethyl phthalate (84-66-2)	U		768	"	"	"
2,4-Dimethylphenol (105-67-9)	U		768	"	"	"
Dimethyl phthalate (131-11-3)	U		768	"	"	"
2,4-Dinitrophenol (51-28-5)	U		3,070	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		768	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		768	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		3,070	"	"	"
Di-n-butyl phthalate (84-74-2)	U		768	"	"	"
Di-n-octyl phthalate (117-84-0)	U		768	"	"	"
Fluoranthene (206-44-0)	U		307	"	"	"
Fluorene (86-73-7)	U		307	"	"	"
Hexachlorobenzene (118-74-1)	U		768	"	"	"
Hexachlorobutadiene (87-68-3)	U		768	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		768	"	"	"
Hexachloroethane (67-72-1)	U		768	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		768	"	"	"
Isophorone (78-59-1)	U		768	"	"	"
2-Methylnaphthalene (91-57-6)	U		307	"	"	"
2-Methylphenol (95-48-7)	U		768	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		768	"	"	"
Naphthalene (91-20-3)	U		307	"	"	"
2-Nitroaniline (88-74-4)	U		1,230	"	"	"
3-Nitroaniline (99-09-2)	U		1,230	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-05 **Station ID: SBA-ESI-09SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/16/14
Sample Wt: 10.697g
%Solids: 60.85

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,230	1	09/23/14	09/25/14
Nitrobenzene (98-95-3)	U		768	"	"	"
2-Nitrophenol (88-75-5)	U		768	"	"	"
4-Nitrophenol (100-02-7)	U		2,000	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		768	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		768	"	"	"
Pentachlorophenol (87-86-5)	U		768	"	"	"
Phenanthrene (85-01-8)	U		307	"	"	"
Phenol (108-95-2)	U		768	"	"	"
Pyrene (129-00-0)	U		307	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		768	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		768	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		768	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-06 **Station ID: SBA-ESI-80SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.707g
%Solids: 36.82
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	12,100		63.4	29-100	09/23/14	09/24/14
Phenol-d5	12,900		67.6	37-100	"	"
2-Chlorophenol-d4	12,300		64.8	33-100	"	"
1,2-Dichlorobenzene-d4	5,630		44.4	28-100	"	"
Nitrobenzene-d5	7,520		59.3	28-100	"	"
2-Fluorobiphenyl	7,750		61.1	37-110	"	"
2,4,6-Tribromophenol	15,000		79.1	41-137	"	"
Terphenyl-d14	9,390		74.1	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		507	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		507	"	"	"
Acetophenone (98-86-2)	U		1,270	"	"	"
Anthracene (120-12-7)	U		507	"	"	"
Atrazine (1912-24-9)	U		1,270	"	"	"
Benzaldehyde (100-52-7)	U		1,270	"	"	"
Benzoic acid (65-85-0)	U		2,540	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,270	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,270	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,270	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,270	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,270	"	"	"
Benzyl alcohol (100-51-6)	U		1,270	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,270	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,270	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,270	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,270	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,270	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,270	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,270	"	"	"
Carbazole (86-74-8)	U		1,270	"	"	"
Caprolactam (105-60-2)	U		1,270	"	"	"
4-Chloroaniline (106-47-8)	U		1,270	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-06 **Station ID: SBA-ESI-80SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.707g
%Solids: 36.82
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,270	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,270	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,270	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,270	"	"	"
Chrysene (218-01-9)	U		1,270	"	"	"
Dibenzofuran (132-64-9)	U		1,270	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,270	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,270	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,270	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,270	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,270	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,270	"	"	"
Diethyl phthalate (84-66-2)	U		1,270	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,270	"	"	"
Dimethyl phthalate (131-11-3)	U		1,270	"	"	"
2,4-Dinitrophenol (51-28-5)	U		5,070	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,270	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,270	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		5,070	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,270	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,270	"	"	"
Fluoranthene (206-44-0)	U		507	"	"	"
Fluorene (86-73-7)	U		507	"	"	"
Hexachlorobenzene (118-74-1)	U		1,270	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,270	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,270	"	"	"
Hexachloroethane (67-72-1)	U		1,270	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,270	"	"	"
Isophorone (78-59-1)	U		1,270	"	"	"
2-Methylnaphthalene (91-57-6)	U		507	"	"	"
2-Methylphenol (95-48-7)	U		1,270	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,270	"	"	"
Naphthalene (91-20-3)	U		507	"	"	"
2-Nitroaniline (88-74-4)	U		2,030	"	"	"
3-Nitroaniline (99-09-2)	U		2,030	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409028-06 **Station ID: SBA-ESI-80SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.707g
%Solids: 36.82

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		2,030	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,270	"	"	"
2-Nitrophenol (88-75-5)	U		1,270	"	"	"
4-Nitrophenol (100-02-7)	U		3,300	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,270	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,270	"	"	"
Pentachlorophenol (87-86-5)	U		1,270	"	"	"
Phenanthrene (85-01-8)	U		507	"	"	"
Phenol (108-95-2)	U		1,270	"	"	"
Pyrene (129-00-0)	U		507	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,270	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,270	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,270	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-01 **Station ID: SBA-ESI-01SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.695g
%Solids: 67.42

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	5,610		54.0	29-100	09/23/14	09/24/14
Phenol-d5	6,120		58.9	37-100	"	"
2-Chlorophenol-d4	5,830		56.0	33-100	"	"
1,2-Dichlorobenzene-d4	3,210		46.3	28-100	"	"
Nitrobenzene-d5	3,590		51.7	28-100	"	"
2-Fluorobiphenyl	3,810		55.0	37-110	"	"
2,4,6-Tribromophenol	6,700		64.4	41-137	"	"
Terphenyl-d14	5,440		78.5	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		277	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		277	"	"	"
Acetophenone (98-86-2)	U		693	"	"	"
Anthracene (120-12-7)	U		277	"	"	"
Atrazine (1912-24-9)	U		693	"	"	"
Benzaldehyde (100-52-7)	U		693	"	"	"
Benzoic acid (65-85-0)	U		1,390	"	"	"
Benzo (a) anthracene (56-55-3)	U		693	"	"	"
Benzo (a) pyrene (50-32-8)	U		693	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		693	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		693	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		693	"	"	"
Benzyl alcohol (100-51-6)	U		693	"	"	"
1,1'-Biphenyl (92-52-4)	U		693	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		693	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		693	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		693	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		693	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		693	"	"	"
Butyl benzyl phthalate (85-68-7)	U		693	"	"	"
Carbazole (86-74-8)	U		693	"	"	"
Caprolactam (105-60-2)	U		693	"	"	"
4-Chloroaniline (106-47-8)	U		693	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-01 **Station ID: SBA-ESI-01SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.695g
%Solids: 67.42

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		693	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		693	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		693	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		693	"	"	"
Chrysene (218-01-9)	U		693	"	"	"
Dibenzofuran (132-64-9)	U		693	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		693	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		693	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		693	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		693	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		693	"	"	"
2,4-Dichlorophenol (120-83-2)	U		693	"	"	"
Diethyl phthalate (84-66-2)	U		693	"	"	"
2,4-Dimethylphenol (105-67-9)	U		693	"	"	"
Dimethyl phthalate (131-11-3)	U		693	"	"	"
2,4-Dinitrophenol (51-28-5)	U		2,770	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		693	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		693	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		2,770	"	"	"
Di-n-butyl phthalate (84-74-2)	U		693	"	"	"
Di-n-octyl phthalate (117-84-0)	U		693	"	"	"
Fluoranthene (206-44-0)	U		277	"	"	"
Fluorene (86-73-7)	U		277	"	"	"
Hexachlorobenzene (118-74-1)	U		693	"	"	"
Hexachlorobutadiene (87-68-3)	U		693	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		693	"	"	"
Hexachloroethane (67-72-1)	U		693	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		693	"	"	"
Isophorone (78-59-1)	U		693	"	"	"
2-Methylnaphthalene (91-57-6)	U		277	"	"	"
2-Methylphenol (95-48-7)	U		693	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		693	"	"	"
Naphthalene (91-20-3)	U		277	"	"	"
2-Nitroaniline (88-74-4)	U		1,110	"	"	"
3-Nitroaniline (99-09-2)	U		1,110	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-01 **Station ID: SBA-ESI-01SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.695g
%Solids: 67.42

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,110	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		693	"	"	"
2-Nitrophenol (88-75-5)	U		693	"	"	"
4-Nitrophenol (100-02-7)	U		1,800	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		693	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		693	"	"	"
Pentachlorophenol (87-86-5)	U		693	"	"	"
Phenanthrene (85-01-8)	U		277	"	"	"
Phenol (108-95-2)	U		693	"	"	"
Pyrene (129-00-0)	U		277	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		693	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		693	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		693	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-02 **Station ID: SBA-ESI-02SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/18/14
Sample Wt: 10.036g
%Solids: 41.91
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	10,300		57.8	29-100	09/23/14	09/24/14
Phenol-d5	11,500		64.5	37-100	"	"
2-Chlorophenol-d4	10,600		59.5	33-100	"	"
1,2-Dichlorobenzene-d4	5,270		44.3	28-100	"	"
Nitrobenzene-d5	6,490		54.6	28-100	"	"
2-Fluorobiphenyl	7,020		59.0	37-110	"	"
2,4,6-Tribromophenol	14,300		80.0	41-137	"	"
Terphenyl-d14	9,260		77.9	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		476	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		476	"	"	"
Acetophenone (98-86-2)	U		1,190	"	"	"
Anthracene (120-12-7)	U		476	"	"	"
Atrazine (1912-24-9)	U		1,190	"	"	"
Benzaldehyde (100-52-7)	U		1,190	"	"	"
Benzoic acid (65-85-0)	U		2,380	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,190	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,190	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,190	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,190	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,190	"	"	"
Benzyl alcohol (100-51-6)	U		1,190	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,190	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,190	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,190	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,190	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,190	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,190	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,190	"	"	"
Carbazole (86-74-8)	U		1,190	"	"	"
Caprolactam (105-60-2)	U		1,190	"	"	"
4-Chloroaniline (106-47-8)	U		1,190	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-02 **Station ID: SBA-ESI-02SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.036g
%Solids: 41.91

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,190	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,190	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,190	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,190	"	"	"
Chrysene (218-01-9)	U		1,190	"	"	"
Dibenzofuran (132-64-9)	U		1,190	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,190	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,190	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,190	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,190	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,190	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,190	"	"	"
Diethyl phthalate (84-66-2)	U		1,190	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,190	"	"	"
Dimethyl phthalate (131-11-3)	U		1,190	"	"	"
2,4-Dinitrophenol (51-28-5)	U		4,760	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,190	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,190	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		4,760	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,190	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,190	"	"	"
Fluoranthene (206-44-0)	U		476	"	"	"
Fluorene (86-73-7)	U		476	"	"	"
Hexachlorobenzene (118-74-1)	U		1,190	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,190	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,190	"	"	"
Hexachloroethane (67-72-1)	U		1,190	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,190	"	"	"
Isophorone (78-59-1)	U		1,190	"	"	"
2-Methylnaphthalene (91-57-6)	U		476	"	"	"
2-Methylphenol (95-48-7)	U		1,190	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,190	"	"	"
Naphthalene (91-20-3)	U		476	"	"	"
2-Nitroaniline (88-74-4)	U		1,900	"	"	"
3-Nitroaniline (99-09-2)	U		1,900	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-02 **Station ID: SBA-ESI-02SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/18/14
Sample Wt: 10.036g
%Solids: 41.91
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,900	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,190	"	"	"
2-Nitrophenol (88-75-5)	U		1,190	"	"	"
4-Nitrophenol (100-02-7)	U		3,090	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,190	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,190	"	"	"
Pentachlorophenol (87-86-5)	U		1,190	"	"	"
Phenanthrene (85-01-8)	U		476	"	"	"
Phenol (108-95-2)	U		1,190	"	"	"
Pyrene (129-00-0)	U		476	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,190	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,190	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,190	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-03 **Station ID: SBA-ESI-03SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.887g
%Solids: 40.24

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	9,880		57.7	29-100	09/23/14	09/24/14
Phenol-d5	10,900		63.8	37-100	"	"
2-Chlorophenol-d4	10,200		59.7	33-100	"	"
1,2-Dichlorobenzene-d4	4,560		40.0	28-100	"	"
Nitrobenzene-d5	5,810		50.9	28-100	"	"
2-Fluorobiphenyl	6,370		55.8	37-110	"	"
2,4,6-Tribromophenol	11,600		67.7	41-137	"	"
Terphenyl-d14	7,640		66.9	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		457	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		457	"	"	"
Acetophenone (98-86-2)	U		1,140	"	"	"
Anthracene (120-12-7)	U		457	"	"	"
Atrazine (1912-24-9)	U		1,140	"	"	"
Benzaldehyde (100-52-7)	U		1,140	"	"	"
Benzoic acid (65-85-0)	U		2,280	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,140	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,140	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,140	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,140	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,140	"	"	"
Benzyl alcohol (100-51-6)	U		1,140	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,140	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,140	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,140	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,140	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,140	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,140	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,140	"	"	"
Carbazole (86-74-8)	U		1,140	"	"	"
Caprolactam (105-60-2)	U		1,140	"	"	"
4-Chloroaniline (106-47-8)	U		1,140	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-03 **Station ID: SBA-ESI-03SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/18/14
Sample Wt: 10.887g
%Solids: 40.24
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,140	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		1,140	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,140	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,140	"	"	"
Chrysene (218-01-9)	U		1,140	"	"	"
Dibenzofuran (132-64-9)	U		1,140	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,140	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,140	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,140	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,140	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,140	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,140	"	"	"
Diethyl phthalate (84-66-2)	U		1,140	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,140	"	"	"
Dimethyl phthalate (131-11-3)	U		1,140	"	"	"
2,4-Dinitrophenol (51-28-5)	U		4,570	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,140	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,140	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		4,570	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,140	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,140	"	"	"
Fluoranthene (206-44-0)	U		457	"	"	"
Fluorene (86-73-7)	U		457	"	"	"
Hexachlorobenzene (118-74-1)	U		1,140	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,140	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,140	"	"	"
Hexachloroethane (67-72-1)	U		1,140	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,140	"	"	"
Isophorone (78-59-1)	U		1,140	"	"	"
2-Methylnaphthalene (91-57-6)	U		457	"	"	"
2-Methylphenol (95-48-7)	U		1,140	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,140	"	"	"
Naphthalene (91-20-3)	U		457	"	"	"
2-Nitroaniline (88-74-4)	U		1,830	"	"	"
3-Nitroaniline (99-09-2)	U		1,830	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-03 **Station ID: SBA-ESI-03SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 10.887g
%Solids: 40.24

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,830	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		1,140	"	"	"
2-Nitrophenol (88-75-5)	U		1,140	"	"	"
4-Nitrophenol (100-02-7)	U		2,970	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,140	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,140	"	"	"
Pentachlorophenol (87-86-5)	U		1,140	"	"	"
Phenanthrene (85-01-8)	U		457	"	"	"
Phenol (108-95-2)	U		1,140	"	"	"
Pyrene (129-00-0)	U		457	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,140	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,140	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,140	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-04 **Station ID: SBA-ESI-04SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.64g
%Solids: 64.21
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	5,930		54.0	29-100	09/23/14	09/24/14
Phenol-d5	6,740		61.4	37-100	"	"
2-Chlorophenol-d4	6,320		57.6	33-100	"	"
1,2-Dichlorobenzene-d4	3,060		41.9	28-100	"	"
Nitrobenzene-d5	3,740		51.1	28-100	"	"
2-Fluorobiphenyl	4,300		58.8	37-110	"	"
2,4,6-Tribromophenol	8,200		74.7	41-137	"	"
Terphenyl-d14	5,770		78.8	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		293	1	09/23/14	09/24/14
Acenaphthylene (208-96-8)	U		293	"	"	"
Acetophenone (98-86-2)	U		732	"	"	"
Anthracene (120-12-7)	U		293	"	"	"
Atrazine (1912-24-9)	U		732	"	"	"
Benzaldehyde (100-52-7)	U		732	"	"	"
Benzoic acid (65-85-0)	U		1,460	"	"	"
Benzo (a) anthracene (56-55-3)	U		732	"	"	"
Benzo (a) pyrene (50-32-8)	U		732	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		732	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		732	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		732	"	"	"
Benzyl alcohol (100-51-6)	U		732	"	"	"
1,1'-Biphenyl (92-52-4)	U		732	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		732	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		732	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		732	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		732	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		732	"	"	"
Butyl benzyl phthalate (85-68-7)	U		732	"	"	"
Carbazole (86-74-8)	U		732	"	"	"
Caprolactam (105-60-2)	U		732	"	"	"
4-Chloroaniline (106-47-8)	U		732	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-04 **Station ID: SBA-ESI-04SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.64g
%Solids: 64.21

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		732	1	09/23/14	09/24/14
2-Chlorophenol (95-57-8)	U		732	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		732	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		732	"	"	"
Chrysene (218-01-9)	**760**		732	"	"	"
Dibenzofuran (132-64-9)	U		732	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		732	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		732	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		732	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		732	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		732	"	"	"
2,4-Dichlorophenol (120-83-2)	U		732	"	"	"
Diethyl phthalate (84-66-2)	U		732	"	"	"
2,4-Dimethylphenol (105-67-9)	U		732	"	"	"
Dimethyl phthalate (131-11-3)	U		732	"	"	"
2,4-Dinitrophenol (51-28-5)	U		2,930	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		732	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		732	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		2,930	"	"	"
Di-n-butyl phthalate (84-74-2)	U		732	"	"	"
Di-n-octyl phthalate (117-84-0)	U		732	"	"	"
Fluoranthene (206-44-0)	**1,040**		293	"	"	"
Fluorene (86-73-7)	**381**		293	"	"	"
Hexachlorobenzene (118-74-1)	U		732	"	"	"
Hexachlorobutadiene (87-68-3)	U		732	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		732	"	"	"
Hexachloroethane (67-72-1)	U		732	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		732	"	"	"
Isophorone (78-59-1)	U		732	"	"	"
2-Methylnaphthalene (91-57-6)	U		293	"	"	"
2-Methylphenol (95-48-7)	U		732	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		732	"	"	"
Naphthalene (91-20-3)	U		293	"	"	"
2-Nitroaniline (88-74-4)	U		1,170	"	"	"
3-Nitroaniline (99-09-2)	U		1,170	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-04 **Station ID: SBA-ESI-04SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.64g
%Solids: 64.21

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,170	1	09/23/14	09/24/14
Nitrobenzene (98-95-3)	U		732	"	"	"
2-Nitrophenol (88-75-5)	U		732	"	"	"
4-Nitrophenol (100-02-7)	U		1,900	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		732	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		732	"	"	"
Pentachlorophenol (87-86-5)	U		732	"	"	"
Phenanthrene (85-01-8)	**1,200**		293	"	"	"
Phenol (108-95-2)	U		732	"	"	"
Pyrene (129-00-0)	**808**		293	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		732	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		732	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		732	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-05 **Station ID: SBA-ESI-10SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 1.397g
%Solids: 26.10

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	83,700		40.7	29-100	09/23/14	09/25/14
Phenol-d5	98,900		48.1	37-100	"	"
2-Chlorophenol-d4	95,300		46.3	33-100	"	"
1,2-Dichlorobenzene-d4	55,100		40.2	28-100	"	"
Nitrobenzene-d5	66,900		48.8	28-100	"	"
2-Fluorobiphenyl	91,800		66.9	37-110	"	"
2,4,6-Tribromophenol	200,000		97.3	41-137	"	"
Terphenyl-d14	172,000		126	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	**250,000**		5,490	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	**46,400**		5,490	"	"	"
Acetophenone (98-86-2)	U		13,700	"	"	"
Anthracene (120-12-7)	**1.04E6**		54,900	10	09/23/14	09/25/14
Atrazine (1912-24-9)	U		13,700	1	09/23/14	09/25/14
Benzaldehyde (100-52-7)	U		13,700	"	"	"
Benzoic acid (65-85-0)	U		27,400	"	"	"
Benzo (a) anthracene (56-55-3)	**664,000**		137,000	10	09/23/14	09/25/14
Benzo (a) pyrene (50-32-8)	**507,000**		137,000	"	"	"
Benzo (b) fluoranthene (205-99-2)	**484,000**		137,000	"	"	"
Benzo (g,h,i) perylene (191-24-2)	**150,000**		137,000	"	"	"
Benzo (k) fluoranthene (207-08-9)	**495,000**		137,000	"	"	"
Benzyl alcohol (100-51-6)	U		13,700	1	09/23/14	09/25/14
1,1'-Biphenyl (92-52-4)	U		13,700	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		13,700	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		13,700	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		13,700	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		13,700	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		13,700	"	"	"
Butyl benzyl phthalate (85-68-7)	U		13,700	"	"	"
Carbazole (86-74-8)	**16,100**	**J**	13,700	"	"	"
Caprolactam (105-60-2)	U		13,700	"	"	"
4-Chloroaniline (106-47-8)	U		13,700	"	"	"
2-Chloronaphthalene (91-58-7)	U		13,700	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-05 **Station ID: SBA-ESI-10SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 1.397g
%Solids: 26.10
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		13,700	1	09/23/14	09/25/14
4-Chlorophenyl phenyl ether (7005-72-3)	U		13,700	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		13,700	"	"	"
Chrysene (218-01-9)	**822,000**		137,000	10	09/23/14	09/25/14
Dibenzofuran (132-64-9)	**157,000**		13,700	1	09/23/14	09/25/14
Dibenz (a,h) anthracene (53-70-3)	**61,900**		54,900	10	09/23/14	09/25/14
1,2-Dichlorobenzene (95-50-1)	U		13,700	1	09/23/14	09/25/14
1,3-Dichlorobenzene (541-73-1)	U		13,700	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		13,700	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		13,700	"	"	"
2,4-Dichlorophenol (120-83-2)	U		13,700	"	"	"
Diethyl phthalate (84-66-2)	U		13,700	"	"	"
2,4-Dimethylphenol (105-67-9)	U		13,700	"	"	"
Dimethyl phthalate (131-11-3)	U		13,700	"	"	"
2,4-Dinitrophenol (51-28-5)	U		54,900	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		13,700	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		13,700	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		54,900	"	"	"
Di-n-butyl phthalate (84-74-2)	U		13,700	"	"	"
Di-n-octyl phthalate (117-84-0)	U		13,700	"	"	"
Fluoranthene (206-44-0)	**1.54E6**		54,900	10	09/23/14	09/25/14
Fluorene (86-73-7)	**510,000**		54,900	"	"	"
Hexachlorobenzene (118-74-1)	U		13,700	1	09/23/14	09/25/14
Hexachlorobutadiene (87-68-3)	U		13,700	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		13,700	"	"	"
Hexachloroethane (67-72-1)	U		13,700	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	**167,000**		137,000	10	09/23/14	09/25/14
Isophorone (78-59-1)	U		13,700	1	09/23/14	09/25/14
2-Methylnaphthalene (91-57-6)	**35,900**		5,490	"	"	"
2-Methylphenol (95-48-7)	U		13,700	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		13,700	"	"	"
Naphthalene (91-20-3)	**9,140**		5,490	"	"	"
2-Nitroaniline (88-74-4)	U		21,900	"	"	"
3-Nitroaniline (99-09-2)	U		21,900	"	"	"
4-Nitroaniline (100-01-6)	U		21,900	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-05 **Station ID: SBA-ESI-10SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 1.397g
%Solids: 26.10
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Nitrobenzene (98-95-3)	U		13,700	1	09/23/14	09/25/14
2-Nitrophenol (88-75-5)	U		13,700	"	"	"
4-Nitrophenol (100-02-7)	U		35,700	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		13,700	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		13,700	"	"	"
Pentachlorophenol (87-86-5)	U		13,700	"	"	"
Phenanthrene (85-01-8)	**1.59E6**		54,900	10	09/23/14	09/25/14
Phenol (108-95-2)	U		13,700	1	09/23/14	09/25/14
Pyrene (129-00-0)	**1.38E6**		54,900	10	09/23/14	09/25/14
1,2,4-Trichlorobenzene (120-82-1)	U		13,700	1	09/23/14	09/25/14
2,4,5-Trichlorophenol (95-95-4)	U		13,700	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		13,700	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-06 **Station ID: SBA-ESI-11SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 2.287g
%Solids: 57.57

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	35,200		61.8	29-100	09/23/14	09/25/14
Phenol-d5	37,300		65.4	37-100	"	"
2-Chlorophenol-d4	36,700		64.5	33-100	"	"
1,2-Dichlorobenzene-d4	21,000		55.4	28-100	"	"
Nitrobenzene-d5	23,800		62.6	28-100	"	"
2-Fluorobiphenyl	26,500		69.8	37-110	"	"
2,4,6-Tribromophenol	49,900		87.6	41-137	"	"
Terphenyl-d14	32,800		86.5	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	**51,100**		1,520	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	**8,820**		1,520	"	"	"
Acetophenone (98-86-2)	U		3,800	"	"	"
Anthracene (120-12-7)	**1.19E6**		152,000	100	09/23/14	09/26/14
Atrazine (1912-24-9)	U		3,800	1	09/23/14	09/25/14
Benzaldehyde (100-52-7)	U		3,800	"	"	"
Benzoic acid (65-85-0)	U		7,600	"	"	"
Benzo (a) anthracene (56-55-3)	**114,000**		38,000	10	09/23/14	09/25/14
Benzo (a) pyrene (50-32-8)	**92,100**		38,000	"	"	"
Benzo (b) fluoranthene (205-99-2)	**107,000**		38,000	"	"	"
Benzo (g,h,i) perylene (191-24-2)	**35,600**		34,200	"	"	"
Benzo (k) fluoranthene (207-08-9)	**98,200**		38,000	"	"	"
Benzyl alcohol (100-51-6)	U		3,800	1	09/23/14	09/25/14
1,1'-Biphenyl (92-52-4)	U		3,800	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		3,800	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		3,800	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		3,800	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		3,800	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		3,800	"	"	"
Butyl benzyl phthalate (85-68-7)	U		3,800	"	"	"
Carbazole (86-74-8)	**308,000**	**J**	38,000	10	09/23/14	09/25/14
Caprolactam (105-60-2)	U		3,800	1	09/23/14	09/25/14
4-Chloroaniline (106-47-8)	U		3,800	"	"	"
2-Chloronaphthalene (91-58-7)	U		3,800	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-06 **Station ID: SBA-ESI-11SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 2.287g
%Solids: 57.57
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		3,800	1	09/23/14	09/25/14
4-Chlorophenyl phenyl ether (7005-72-3)	U		3,800	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		3,800	"	"	"
Chrysene (218-01-9)	**177,000**		38,000	10	09/23/14	09/25/14
Dibenzofuran (132-64-9)	**57,600**		3,800	1	09/23/14	09/25/14
Dibenz (a,h) anthracene (53-70-3)	**10,100**	**J**	3,800	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		3,800	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		3,800	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		3,800	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		3,800	"	"	"
2,4-Dichlorophenol (120-83-2)	U		3,800	"	"	"
Diethyl phthalate (84-66-2)	U		3,800	"	"	"
2,4-Dimethylphenol (105-67-9)	U		3,800	"	"	"
Dimethyl phthalate (131-11-3)	U		3,800	"	"	"
2,4-Dinitrophenol (51-28-5)	U		15,200	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		3,800	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		3,800	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		15,200	"	"	"
Di-n-butyl phthalate (84-74-2)	U		3,800	"	"	"
Di-n-octyl phthalate (117-84-0)	U		3,800	"	"	"
Fluoranthene (206-44-0)	**413,000**		15,200	10	09/23/14	09/25/14
Fluorene (86-73-7)	**173,000**		15,200	"	"	"
Hexachlorobenzene (118-74-1)	U		3,800	1	09/23/14	09/25/14
Hexachlorobutadiene (87-68-3)	U		3,800	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		3,800	"	"	"
Hexachloroethane (67-72-1)	U		3,800	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	**44,300**		38,000	10	09/23/14	09/25/14
Isophorone (78-59-1)	U		3,800	1	09/23/14	09/25/14
2-Methylnaphthalene (91-57-6)	**32,400**		1,520	"	"	"
2-Methylphenol (95-48-7)	U		3,800	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		3,800	"	"	"
Naphthalene (91-20-3)	**15,000**		1,520	"	"	"
2-Nitroaniline (88-74-4)	U		6,080	"	"	"
3-Nitroaniline (99-09-2)	U		6,080	"	"	"
4-Nitroaniline (100-01-6)	U		6,080	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-06 **Station ID: SBA-ESI-11SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 2.287g
%Solids: 57.57

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Nitrobenzene (98-95-3)	U		3,800	1	09/23/14	09/25/14
2-Nitrophenol (88-75-5)	U		3,800	"	"	"
4-Nitrophenol (100-02-7)	U		9,870	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		3,800	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		3,800	"	"	"
Pentachlorophenol (87-86-5)	U		3,800	"	"	"
Phenanthrene (85-01-8)	**477,000**		15,200	10	09/23/14	09/25/14
Phenol (108-95-2)	U		3,800	1	09/23/14	09/25/14
Pyrene (129-00-0)	**297,000**		15,200	10	09/23/14	09/25/14
1,2,4-Trichlorobenzene (120-82-1)	U		3,800	1	09/23/14	09/25/14
2,4,5-Trichlorophenol (95-95-4)	U		3,800	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		3,800	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-07 **Station ID: SBA-ESI-12SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.2g
%Solids: 24.85

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	19,400		65.5	29-100	09/23/14	09/25/14
Phenol-d5	19,700		66.5	37-100	"	"
2-Chlorophenol-d4	19,600		66.4	33-100	"	"
1,2-Dichlorobenzene-d4	10,900		55.1	28-100	"	"
Nitrobenzene-d5	12,300		62.4	28-100	"	"
2-Fluorobiphenyl	13,000		66.1	37-110	"	"
2,4,6-Tribromophenol	21,800		73.7	41-137	"	"
Terphenyl-d14	15,100		76.8	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		789	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	U		789	"	"	"
Acetophenone (98-86-2)	U		1,970	"	"	"
Anthracene (120-12-7)	U		789	"	"	"
Atrazine (1912-24-9)	U		1,970	"	"	"
Benzaldehyde (100-52-7)	U		1,970	"	"	"
Benzoic acid (65-85-0)	U		3,940	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,970	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,970	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,970	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,970	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,970	"	"	"
Benzyl alcohol (100-51-6)	U		1,970	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,970	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,970	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,970	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,970	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,970	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,970	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,970	"	"	"
Carbazole (86-74-8)	U		1,970	"	"	"
Caprolactam (105-60-2)	U		1,970	"	"	"
4-Chloroaniline (106-47-8)	U		1,970	"	"	"

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-07 **Station ID: SBA-ESI-12SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.2g
%Solids: 24.85
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,970	1	09/23/14	09/25/14
2-Chlorophenol (95-57-8)	U		1,970	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,970	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,970	"	"	"
Chrysene (218-01-9)	U		1,970	"	"	"
Dibenzofuran (132-64-9)	U		1,970	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,970	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,970	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,970	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,970	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,970	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,970	"	"	"
Diethyl phthalate (84-66-2)	U		1,970	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,970	"	"	"
Dimethyl phthalate (131-11-3)	U		1,970	"	"	"
2,4-Dinitrophenol (51-28-5)	U		7,890	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,970	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,970	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		7,890	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,970	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,970	"	"	"
Fluoranthene (206-44-0)	U		789	"	"	"
Fluorene (86-73-7)	U		789	"	"	"
Hexachlorobenzene (118-74-1)	U		1,970	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,970	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,970	"	"	"
Hexachloroethane (67-72-1)	U		1,970	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,970	"	"	"
Isophorone (78-59-1)	U		1,970	"	"	"
2-Methylnaphthalene (91-57-6)	U		789	"	"	"
2-Methylphenol (95-48-7)	U		1,970	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,970	"	"	"
Naphthalene (91-20-3)	U		789	"	"	"
2-Nitroaniline (88-74-4)	U		3,160	"	"	"
3-Nitroaniline (99-09-2)	U		3,160	"	"	"

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Lab ID: 1409034-07 **Station ID: SBA-ESI-12SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.2g
%Solids: 24.85

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		3,160	1	09/23/14	09/25/14
Nitrobenzene (98-95-3)	U		1,970	"	"	"
2-Nitrophenol (88-75-5)	U		1,970	"	"	"
4-Nitrophenol (100-02-7)	U		5,130	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,970	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,970	"	"	"
Pentachlorophenol (87-86-5)	U		1,970	"	"	"
Phenanthrene (85-01-8)	U		789	"	"	"
Phenol (108-95-2)	U		1,970	"	"	"
Pyrene (129-00-0)	U		789	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,970	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,970	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,970	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-08 **Station ID: SBA-ESI-13MW**

Batch: B4I2202 Date Collected: 09/17/14
Sample Type: Liquid Sample Vol: 1052ml Sample Qualifiers: **A**

Surrogates

Analyte	Result µg/L	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	49.4		69.3	42-109	09/22/14	09/22/14
Phenol-d5	44.2		61.9	46-110	"	"
2-Chlorophenol-d4	50.3		70.5	47-103	"	"
1,2-Dichlorobenzene-d4	29.5		62.0	33-100	"	"
Nitrobenzene-d5	30.0		63.0	42-126	"	"
2-Fluorobiphenyl	29.4		61.9	50-104	"	"
2,4,6-Tribromophenol	69.6		97.6	59-142	"	"
Terphenyl-d14	44.8		94.2	61-125	"	"

Targets

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		1.9	1	09/22/14	09/22/14
Acenaphthylene (208-96-8)	U		1.9	"	"	"
Acetophenone (98-86-2)	U		4.8	"	"	"
Anthracene (120-12-7)	U		1.9	"	"	"
Atrazine (1912-24-9)	U		4.8	"	"	"
Benzaldehyde (100-52-7)	U		4.8	"	"	"
Benzoic acid (65-85-0)	U		9.5	"	"	"
Benzo (a) anthracene (56-55-3)	U		4.8	"	"	"
Benzo (a) pyrene (50-32-8)	U		4.8	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		4.8	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		4.8	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		4.8	"	"	"
Benzyl alcohol (100-51-6)	U		4.8	"	"	"
1,1'-Biphenyl (92-52-4)	U		4.8	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		4.8	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		4.8	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		4.8	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		4.8	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		4.8	"	"	"
Butyl benzyl phthalate (85-68-7)	U		4.8	"	"	"
Carbazole (86-74-8)	U		4.8	"	"	"
Caprolactam (105-60-2)	U		4.8	"	"	"
4-Chloroaniline (106-47-8)	U		4.8	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-08 **Station ID: SBA-ESI-13MW**

Batch: B4I2202
Date Collected: 09/17/14
Sample Type: Liquid
Sample Vol: 1052ml
Sample Qualifiers: **A**

Targets (Continued)

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		4.8	1	09/22/14	09/22/14
2-Chlorophenol (95-57-8)	U		4.8	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		4.8	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		4.8	"	"	"
Chrysene (218-01-9)	U		4.8	"	"	"
Dibenzofuran (132-64-9)	U		4.8	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		4.8	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		4.8	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		4.8	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		4.8	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		4.8	"	"	"
2,4-Dichlorophenol (120-83-2)	U		4.8	"	"	"
Diethyl phthalate (84-66-2)	U		4.8	"	"	"
2,4-Dimethylphenol (105-67-9)	U		4.8	"	"	"
Dimethyl phthalate (131-11-3)	U		4.8	"	"	"
2,4-Dinitrophenol (51-28-5)	U		19.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		4.8	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		4.8	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		19.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		4.8	"	"	"
Di-n-octyl phthalate (117-84-0)	U		4.8	"	"	"
Fluoranthene (206-44-0)	U		1.9	"	"	"
Fluorene (86-73-7)	U		1.9	"	"	"
Hexachlorobenzene (118-74-1)	U		4.8	"	"	"
Hexachlorobutadiene (87-68-3)	U		4.8	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		4.8	"	"	"
Hexachloroethane (67-72-1)	U		4.8	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		4.8	"	"	"
Isophorone (78-59-1)	U		4.8	"	"	"
2-Methylnaphthalene (91-57-6)	U		1.9	"	"	"
2-Methylphenol (95-48-7)	U		4.8	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		4.8	"	"	"
Naphthalene (91-20-3)	U		1.9	"	"	"
2-Nitroaniline (88-74-4)	U		7.6	"	"	"
3-Nitroaniline (99-09-2)	U		7.6	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-08 **Station ID: SBA-ESI-13MW**

Batch: B4I2202 Date Collected: 09/17/14
Sample Type: Liquid Sample Vol: 1052ml Sample Qualifiers: **A**

Targets (Continued)

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		7.6	1	09/22/14	09/22/14
Nitrobenzene (98-95-3)	U		4.8	"	"	"
2-Nitrophenol (88-75-5)	U		4.8	"	"	"
4-Nitrophenol (100-02-7)	U		12.4	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		4.8	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		4.8	"	"	"
Pentachlorophenol (87-86-5)	U		4.8	"	"	"
Phenanthrene (85-01-8)	U		1.9	"	"	"
Phenol (108-95-2)	U		4.8	"	"	"
Pyrene (129-00-0)	U		1.9	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		4.8	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		4.8	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		4.8	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-09 **Station ID: SBA-ESI-16SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 14.357g
%Solids: 14.36

Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	26,600		73.0	29-100	09/23/14	09/25/14
Phenol-d5	26,600		73.0	37-100	"	"
2-Chlorophenol-d4	27,000		74.1	33-100	"	"
1,2-Dichlorobenzene-d4	14,800		61.0	28-100	"	"
Nitrobenzene-d5	17,200		70.9	28-100	"	"
2-Fluorobiphenyl	17,500		72.0	37-110	"	"
2,4,6-Tribromophenol	28,500		78.3	41-137	"	"
Terphenyl-d14	18,000		74.4	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		970	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	U		970	"	"	"
Acetophenone (98-86-2)	U		2,430	"	"	"
Anthracene (120-12-7)	U		970	"	"	"
Atrazine (1912-24-9)	U		2,430	"	"	"
Benzaldehyde (100-52-7)	U		2,430	"	"	"
Benzoic acid (65-85-0)	U		4,850	"	"	"
Benzo (a) anthracene (56-55-3)	U		2,430	"	"	"
Benzo (a) pyrene (50-32-8)	U		2,430	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		2,430	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		2,430	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		2,430	"	"	"
Benzyl alcohol (100-51-6)	U		2,430	"	"	"
1,1'-Biphenyl (92-52-4)	U		2,430	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		2,430	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		2,430	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		2,430	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		2,430	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		2,430	"	"	"
Butyl benzyl phthalate (85-68-7)	U		2,430	"	"	"
Carbazole (86-74-8)	U		2,430	"	"	"
Caprolactam (105-60-2)	U		2,430	"	"	"
4-Chloroaniline (106-47-8)	U		2,430	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-09 **Station ID: SBA-ESI-16SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 14.357g
%Solids: 14.36

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		2,430	1	09/23/14	09/25/14
2-Chlorophenol (95-57-8)	U		2,430	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		2,430	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		2,430	"	"	"
Chrysene (218-01-9)	U		2,430	"	"	"
Dibenzofuran (132-64-9)	U		2,430	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		2,430	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		2,430	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		2,430	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		2,430	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		2,430	"	"	"
2,4-Dichlorophenol (120-83-2)	U		2,430	"	"	"
Diethyl phthalate (84-66-2)	U		2,430	"	"	"
2,4-Dimethylphenol (105-67-9)	U		2,430	"	"	"
Dimethyl phthalate (131-11-3)	U		2,430	"	"	"
2,4-Dinitrophenol (51-28-5)	U		9,700	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		2,430	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		2,430	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		9,700	"	"	"
Di-n-butyl phthalate (84-74-2)	U		2,430	"	"	"
Di-n-octyl phthalate (117-84-0)	U		2,430	"	"	"
Fluoranthene (206-44-0)	U		970	"	"	"
Fluorene (86-73-7)	U		970	"	"	"
Hexachlorobenzene (118-74-1)	U		2,430	"	"	"
Hexachlorobutadiene (87-68-3)	U		2,430	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		2,430	"	"	"
Hexachloroethane (67-72-1)	U		2,430	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		2,430	"	"	"
Isophorone (78-59-1)	U		2,430	"	"	"
2-Methylnaphthalene (91-57-6)	U		970	"	"	"
2-Methylphenol (95-48-7)	U		2,430	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		2,430	"	"	"
Naphthalene (91-20-3)	U		970	"	"	"
2-Nitroaniline (88-74-4)	U		3,880	"	"	"
3-Nitroaniline (99-09-2)	U		3,880	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-09 **Station ID: SBA-ESI-16SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/18/14
Sample Wt: 14.357g
%Solids: 14.36

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		3,880	1	09/23/14	09/25/14
Nitrobenzene (98-95-3)	U		2,430	"	"	"
2-Nitrophenol (88-75-5)	U		2,430	"	"	"
4-Nitrophenol (100-02-7)	U		6,310	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		2,430	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		2,430	"	"	"
Pentachlorophenol (87-86-5)	U		2,430	"	"	"
Phenanthrene (85-01-8)	U		970	"	"	"
Phenol (108-95-2)	U		2,430	"	"	"
Pyrene (129-00-0)	U		970	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		2,430	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		2,430	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		2,430	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-10 **Station ID: SBA-ESI-30SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.22g
%Solids: 48.33
Sample Qualifiers:

Surrogates

Analyte	Result µg/kg (dry)	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	5,510		36.3	29-100	09/23/14	09/25/14
Phenol-d5	6,210		40.9	37-100	"	"
2-Chlorophenol-d4	5,760		38.0	33-100	"	"
1,2-Dichlorobenzene-d4	3,000		29.6	28-100	"	"
Nitrobenzene-d5	3,550		35.1	28-100	"	"
2-Fluorobiphenyl	4,270		42.2	37-110	"	"
2,4,6-Tribromophenol	10,500		69.3	41-137	"	"
Terphenyl-d14	7,250		71.6	46-138	"	"

Targets

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		405	1	09/23/14	09/25/14
Acenaphthylene (208-96-8)	U		405	"	"	"
Acetophenone (98-86-2)	U		1,010	"	"	"
Anthracene (120-12-7)	U		405	"	"	"
Atrazine (1912-24-9)	U		1,010	"	"	"
Benzaldehyde (100-52-7)	U		1,010	"	"	"
Benzoic acid (65-85-0)	U		2,020	"	"	"
Benzo (a) anthracene (56-55-3)	U		1,010	"	"	"
Benzo (a) pyrene (50-32-8)	U		1,010	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		1,010	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		1,010	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		1,010	"	"	"
Benzyl alcohol (100-51-6)	U		1,010	"	"	"
1,1'-Biphenyl (92-52-4)	U		1,010	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		1,010	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		1,010	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		1,010	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		1,010	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		1,010	"	"	"
Butyl benzyl phthalate (85-68-7)	U		1,010	"	"	"
Carbazole (86-74-8)	U		1,010	"	"	"
Caprolactam (105-60-2)	U		1,010	"	"	"
4-Chloroaniline (106-47-8)	U		1,010	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-10 **Station ID: SBA-ESI-30SD**

Batch: B4I2205
Sample Type: Solid
Date Collected: 09/17/14
Sample Wt: 10.22g
%Solids: 48.33
Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		1,010	1	09/23/14	09/25/14
2-Chlorophenol (95-57-8)	U		1,010	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		1,010	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		1,010	"	"	"
Chrysene (218-01-9)	U		1,010	"	"	"
Dibenzofuran (132-64-9)	U		1,010	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		1,010	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		1,010	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		1,010	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		1,010	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		1,010	"	"	"
2,4-Dichlorophenol (120-83-2)	U		1,010	"	"	"
Diethyl phthalate (84-66-2)	U		1,010	"	"	"
2,4-Dimethylphenol (105-67-9)	U		1,010	"	"	"
Dimethyl phthalate (131-11-3)	U		1,010	"	"	"
2,4-Dinitrophenol (51-28-5)	U		4,050	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		1,010	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		1,010	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		4,050	"	"	"
Di-n-butyl phthalate (84-74-2)	U		1,010	"	"	"
Di-n-octyl phthalate (117-84-0)	U		1,010	"	"	"
Fluoranthene (206-44-0)	U		405	"	"	"
Fluorene (86-73-7)	U		405	"	"	"
Hexachlorobenzene (118-74-1)	U		1,010	"	"	"
Hexachlorobutadiene (87-68-3)	U		1,010	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		1,010	"	"	"
Hexachloroethane (67-72-1)	U		1,010	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		1,010	"	"	"
Isophorone (78-59-1)	U		1,010	"	"	"
2-Methylnaphthalene (91-57-6)	U		405	"	"	"
2-Methylphenol (95-48-7)	U		1,010	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		1,010	"	"	"
Naphthalene (91-20-3)	U		405	"	"	"
2-Nitroaniline (88-74-4)	U		1,620	"	"	"
3-Nitroaniline (99-09-2)	U		1,620	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-10 **Station ID: SBA-ESI-30SD**

Batch: B4I2205
Sample Type: Solid

Date Collected: 09/17/14
Sample Wt: 10.22g
%Solids: 48.33

Sample Qualifiers:

Targets (Continued)

Analyte (CAS Number)	Result µg/kg (dry)	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		1,620	1	09/23/14	09/25/14
Nitrobenzene (98-95-3)	U		1,010	"	"	"
2-Nitrophenol (88-75-5)	U		1,010	"	"	"
4-Nitrophenol (100-02-7)	U		2,630	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		1,010	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		1,010	"	"	"
Pentachlorophenol (87-86-5)	U		1,010	"	"	"
Phenanthrene (85-01-8)	U		405	"	"	"
Phenol (108-95-2)	U		1,010	"	"	"
Pyrene (129-00-0)	**525**		405	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		1,010	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		1,010	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		1,010	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-11 **Station ID: SBA-ESI-31MW**

Batch: B4I2202
Date Collected: 09/17/14
Sample Type: Liquid
Sample Vol: 960ml
Sample Qualifiers: **A**

Surrogates

Analyte	Result µg/L	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
2-Fluorophenol	54.3		69.5	42-109	09/22/14	09/22/14
Phenol-d5	50.5		64.6	46-110	"	"
2-Chlorophenol-d4	55.6		71.2	47-103	"	"
1,2-Dichlorobenzene-d4	30.7		58.9	33-100	"	"
Nitrobenzene-d5	32.8		63.0	42-126	"	"
2-Fluorobiphenyl	33.3		64.0	50-104	"	"
2,4,6-Tribromophenol	80.9		103	59-142	"	"
Terphenyl-d14	49.2		94.5	61-125	"	"

Targets

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		2.1	1	09/22/14	09/22/14
Acenaphthylene (208-96-8)	U		2.1	"	"	"
Acetophenone (98-86-2)	U		5.2	"	"	"
Anthracene (120-12-7)	U		2.1	"	"	"
Atrazine (1912-24-9)	U		5.2	"	"	"
Benzaldehyde (100-52-7)	U		5.2	"	"	"
Benzoic acid (65-85-0)	U		10.4	"	"	"
Benzo (a) anthracene (56-55-3)	U		5.2	"	"	"
Benzo (a) pyrene (50-32-8)	U		5.2	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		5.2	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		5.2	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		5.2	"	"	"
Benzyl alcohol (100-51-6)	U		5.2	"	"	"
1,1'-Biphenyl (92-52-4)	U		5.2	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		5.2	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		5.2	"	"	"
Bis(2-chloro-1-methylethyl)ether (108-60-1)	U		5.2	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		5.2	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		5.2	"	"	"
Butyl benzyl phthalate (85-68-7)	U		5.2	"	"	"
Carbazole (86-74-8)	U		5.2	"	"	"
Caprolactam (105-60-2)	U		5.2	"	"	"
4-Chloroaniline (106-47-8)	U		5.2	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-11 **Station ID: SBA-ESI-31MW**

Batch: B4I2202 Date Collected: 09/17/14
Sample Type: Liquid Sample Vol: 960ml Sample Qualifiers: **A**

Targets (Continued)

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chloronaphthalene (91-58-7)	U		5.2	1	09/22/14	09/22/14
2-Chlorophenol (95-57-8)	U		5.2	"	"	"
4-Chlorophenyl phenyl ether (7005-72-3)	U		5.2	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		5.2	"	"	"
Chrysene (218-01-9)	U		5.2	"	"	"
Dibenzofuran (132-64-9)	U		5.2	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		5.2	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		5.2	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		5.2	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		5.2	"	"	"
3,3´-Dichlorobenzidine (91-94-1)	U		5.2	"	"	"
2,4-Dichlorophenol (120-83-2)	U		5.2	"	"	"
Diethyl phthalate (84-66-2)	U		5.2	"	"	"
2,4-Dimethylphenol (105-67-9)	U		5.2	"	"	"
Dimethyl phthalate (131-11-3)	U		5.2	"	"	"
2,4-Dinitrophenol (51-28-5)	U		20.8	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		5.2	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		5.2	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		20.8	"	"	"
Di-n-butyl phthalate (84-74-2)	U		5.2	"	"	"
Di-n-octyl phthalate (117-84-0)	U		5.2	"	"	"
Fluoranthene (206-44-0)	U		2.1	"	"	"
Fluorene (86-73-7)	U		2.1	"	"	"
Hexachlorobenzene (118-74-1)	U		5.2	"	"	"
Hexachlorobutadiene (87-68-3)	U		5.2	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		5.2	"	"	"
Hexachloroethane (67-72-1)	U		5.2	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		5.2	"	"	"
Isophorone (78-59-1)	U		5.2	"	"	"
2-Methylnaphthalene (91-57-6)	U		2.1	"	"	"
2-Methylphenol (95-48-7)	U		5.2	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		5.2	"	"	"
Naphthalene (91-20-3)	U		2.1	"	"	"
2-Nitroaniline (88-74-4)	U		8.3	"	"	"
3-Nitroaniline (99-09-2)	U		8.3	"	"	"

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Semivolatiles by CLP OLM04.2 - GC/MS

Lab ID: 1409034-11 **Station ID: SBA-ESI-31MW**

Batch: B4I2202
Sample Type: Liquid
Date Collected: 09/17/14
Sample Vol: 960ml
Sample Qualifiers: **A**

Targets (Continued)

Analyte (CAS Number)	Result µg/L	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
4-Nitroaniline (100-01-6)	U		8.3	1	09/22/14	09/22/14
Nitrobenzene (98-95-3)	U		5.2	"	"	"
2-Nitrophenol (88-75-5)	U		5.2	"	"	"
4-Nitrophenol (100-02-7)	U		13.5	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		5.2	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		5.2	"	"	"
Pentachlorophenol (87-86-5)	U		5.2	"	"	"
Phenanthrene (85-01-8)	U		2.1	"	"	"
Phenol (108-95-2)	U		5.2	"	"	"
Pyrene (129-00-0)	U		2.1	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		5.2	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		5.2	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		5.2	"	"	"

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Percent Solids - Quality Control

Duplicate (B4I2204-DUP1)

Source: 1409034-10   Prepared: 9/22/2014 Analyzed: 9/23/2014

Targets

ANALYTE	Result %	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	RPD	RPD Limit
% Solids	53.56				48.33	10.3	20

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Blank (B4I2202-BLK1)

Prepared: 9/22/2014 Analyzed: 9/22/2014

Surrogates

ANALYTE	Result µg/L	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	58.7		75.0	78.3	42-109
Phenol-d5	52.9		75.0	70.5	46-110
2-Chlorophenol-d4	60.3		75.0	80.4	47-103
1,2-Dichlorobenzene-d4	33.7		50.0	67.4	33-100
Nitrobenzene-d5	35.4		50.0	70.8	42-126
2-Fluorobiphenyl	34.5		50.0	68.9	50-104
2,4,6-Tribromophenol	64.5		75.0	86.0	59-142
Terphenyl-d14	50.4		50.0	101	61-125

Blank (B4I2202-BLK1)

Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit
Acenaphthene	U		2.0
Acenaphthylene	U		2.0
Acetophenone	U		5.0
Anthracene	U		2.0
Atrazine	U		5.0
Benzaldehyde	U		5.0
Benzoic acid	U		10.0
Benzo (a) anthracene	U		5.0
Benzo (a) pyrene	U		5.0
Benzo (b) fluoranthene	U		5.0
Benzo (g,h,i) perylene	U		5.0
Benzo (k) fluoranthene	U		5.0
Benzyl alcohol	U		5.0
1,1'-Biphenyl	U		5.0
Bis(2-chloroethoxy)methane	U		5.0
Bis(2-chloroethyl)ether	U		5.0

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Blank (B4I2202-BLK1)

Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets (Continued)

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit
Bis(2-chloro-1-methylethyl)ether	U		5.0
Bis(2-ethylhexyl)phthalate	U		5.0
4-Bromophenyl phenyl ether	U		5.0
Butyl benzyl phthalate	U		5.0
Carbazole	U		5.0
Caprolactam	U		5.0
4-Chloroaniline	U		5.0
2-Chloronaphthalene	U		5.0
2-Chlorophenol	U		5.0
4-Chlorophenyl phenyl ether	U		5.0
4-Chloro-3-methylphenol	U		5.0
Chrysene	U		5.0
Dibenzofuran	U		5.0
Dibenz (a,h) anthracene	U		5.0
1,2-Dichlorobenzene	U		5.0
1,3-Dichlorobenzene	U		5.0
1,4-Dichlorobenzene	U		5.0
3,3´-Dichlorobenzidine	U		5.0
2,4-Dichlorophenol	U		5.0
Diethyl phthalate	U		5.0
2,4-Dimethylphenol	U		5.0
Dimethyl phthalate	U		5.0
2,4-Dinitrophenol	U		20.0
2,4-Dinitrotoluene	U		5.0
2,6-Dinitrotoluene	U		5.0
4,6-Dinitro-2-methylphenol	U		20.0
Di-n-butyl phthalate	U		5.0
Di-n-octyl phthalate	U		5.0
Fluoranthene	U		2.0
Fluorene	U		2.0

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Blank (B4I2202-BLK1)

Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets (Continued)

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit
Hexachlorobenzene	U		5.0
Hexachlorobutadiene	U		5.0
Hexachlorocyclopentadiene	U		5.0
Hexachloroethane	U		5.0
Indeno (1,2,3-cd) pyrene	U		5.0
Isophorone	U		5.0
2-Methylnaphthalene	U		2.0
2-Methylphenol	U		5.0
3 &/or 4-Methylphenol	U		5.0
Naphthalene	U		2.0
2-Nitroaniline	U		8.0
3-Nitroaniline	U		8.0
4-Nitroaniline	U		8.0
Nitrobenzene	U		5.0
2-Nitrophenol	U		5.0
4-Nitrophenol	U		13.0
N-Nitrosodiphenylamine	U		5.0
N-Nitrosodi-n-propylamine	U		5.0
Pentachlorophenol	U		5.0
Phenanthrene	U		2.0
Phenol	U		5.0
Pyrene	U		2.0
1,2,4-Trichlorobenzene	U		5.0
2,4,5-Trichlorophenol	U		5.0
2,4,6-Trichlorophenol	U		5.0

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

LCS (B4I2202-BS1)
Prepared: 9/22/2014 Analyzed: 9/22/2014

Surrogates

ANALYTE	Result µg/L	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	69.5		75.0	92.7	42-109
Phenol-d5	62.7		75.0	83.6	46-110
2-Chlorophenol-d4	70.6		75.0	94.1	47-103
1,2-Dichlorobenzene-d4	37.9		50.0	75.8	33-100
Nitrobenzene-d5	41.3		50.0	82.6	42-126
2-Fluorobiphenyl	39.4		50.0	78.9	50-104
2,4,6-Tribromophenol	79.1		75.0	105	59-142
Terphenyl-d14	52.5		50.0	105	61-125

LCS (B4I2202-BS1)
Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit	Spike Level	%REC	%REC Limits
Acenaphthene	41.5		2.0	50.0	83.0	63-112
2-Chlorophenol	64.8		5.0	75.0	86.4	64-116
4-Chloro-3-methylphenol	61.6		5.0	75.0	82.2	63-117
1,4-Dichlorobenzene	34.9		5.0	50.0	69.9	35-100
2,4-Dinitrotoluene	42.7		5.0	50.0	85.5	59-120
4-Nitrophenol	64.5		13.0	75.0	86.1	49-137
N-Nitrosodi-n-propylamine	37.3		5.0	50.0	74.5	65-118
Pentachlorophenol	85.4		5.0	75.0	114	46-133
Phenol	58.9		5.0	75.0	78.6	60-116
Pyrene	43.4		2.0	50.0	86.7	59-131
1,2,4-Trichlorobenzene	37.5		5.0	50.0	75.1	42-103

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Matrix Spike (B4I2202-MS1)

Source: 1409034-08 Prepared: 9/22/2014 Analyzed: 9/22/2014

Surrogates

ANALYTE	Result µg/L	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	67.3		78.1	86.1	42-109
Phenol-d5	59.3		78.1	75.9	46-110
2-Chlorophenol-d4	68.6		78.1	87.8	47-103
1,2-Dichlorobenzene-d4	38.0		52.1	73.0	33-100
Nitrobenzene-d5	40.7		52.1	78.1	42-126
2-Fluorobiphenyl	39.4		52.1	75.6	50-104
2,4,6-Tribromophenol	83.1		78.1	106	59-142
Terphenyl-d14	52.0		52.1	99.8	61-125

Matrix Spike (B4I2202-MS1)

Source: 1409034-08 Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC	%REC Limits
Acenaphthene	42.9		2.1	52.1		82.4	41-131
2-Chlorophenol	63.9		5.2	78.1		81.8	46-114
4-Chloro-3-methylphenol	68.1		5.2	78.1		87.2	44-137
1,4-Dichlorobenzene	38.2		5.2	52.1		73.3	34-100
2,4-Dinitrotoluene	46.2		5.2	52.1		88.6	57-123
4-Nitrophenol	82.0		13.5	78.1		105	39-152
N-Nitrosodi-n-propylamine	35.7		5.2	52.1		68.6	50-116
Pentachlorophenol	102		5.2	78.1		131	55-146
Phenol	56.5		5.2	78.1		72.3	41-114
Pyrene	44.6		2.1	52.1		85.7	54-133
1,2,4-Trichlorobenzene	40.2		5.2	52.1		77.2	38-106

Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2202 **Sample Type: Liquid**

Matrix Spike Dup (B4I2202-MSD1)

Source: 1409034-08 Prepared: 9/22/2014 Analyzed: 9/22/2014

Surrogates

ANALYTE	Result µg/L	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	53.0		70.8	74.9	42-109
Phenol-d5	47.4		70.8	67.0	46-110
2-Chlorophenol-d4	54.3		70.8	76.7	47-103
1,2-Dichlorobenzene-d4	26.4		47.2	56.0	33-100
Nitrobenzene-d5	32.6		47.2	69.2	42-126
2-Fluorobiphenyl	31.2		47.2	66.2	50-104
2,4,6-Tribromophenol	70.1		70.8	99.1	59-142
Terphenyl-d14	41.6		47.2	88.3	61-125

Matrix Spike Dup (B4I2202-MSD1)

Source: 1409034-08 Prepared: 9/22/2014 Analyzed: 9/22/2014

Targets

ANALYTE	Result µg/L	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acenaphthene	32.1		1.9	47.2		68.0	41-131	19.2	33
2-Chlorophenol	50.2		4.7	70.8		71.0	46-114	14.2	27
4-Chloro-3-methylphenol	55.6		4.7	70.8		78.5	44-137	10.4	30
1,4-Dichlorobenzene	27.9		4.7	47.2		59.2	34-100	21.3	32
2,4-Dinitrotoluene	37.0		4.7	47.2		78.5	57-123	12.2	16
4-Nitrophenol	64.4		12.3	70.8		91.0	39-152	14.2	34
N-Nitrosodi-n-propylamine	28.8		4.7	47.2		61.1	50-116	11.6	29
Pentachlorophenol	83.9		4.7	70.8		119	55-146	9.67	21
Phenol	44.7		4.7	70.8		63.2	41-114	13.4	32
Pyrene	34.9		1.9	47.2		73.9	54-133	14.7	21
1,2,4-Trichlorobenzene	27.9		4.7	47.2		59.1	38-106	26.6 #	26

Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

Blank (B4I2205-BLK1)

Prepared: 9/23/2014 Analyzed: 9/24/2014

Surrogates

ANALYTE	Result µg/kg dry	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	5,330		7,480	71.3	29-100
Phenol-d5	5,710		7,480	76.3	37-100
2-Chlorophenol-d4	5,540		7,480	74.0	33-100
1,2-Dichlorobenzene-d4	3,020		4,990	60.5	28-100
Nitrobenzene-d5	3,420		4,990	68.5	28-100
2-Fluorobiphenyl	3,590		4,990	71.9	37-110
2,4,6-Tribromophenol	5,140		7,480	68.7	41-137
Terphenyl-d14	4,280		4,990	85.8	46-138

Blank (B4I2205-BLK1)

Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit
Acenaphthene	U		199
Acenaphthylene	U		199
Acetophenone	U		499
Anthracene	U		199
Atrazine	U		499
Benzaldehyde	U		499
Benzoic acid	U		997
Benzo (a) anthracene	U		499
Benzo (a) pyrene	U		499
Benzo (b) fluoranthene	U		499
Benzo (g,h,i) perylene	U		499
Benzo (k) fluoranthene	U		499
Benzyl alcohol	U		499
1,1'-Biphenyl	U		499
Bis(2-chloroethoxy)methane	U		499
Bis(2-chloroethyl)ether	U		499

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

Blank (B4I2205-BLK1)

Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets (Continued)

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit
Bis(2-chloro-1-methylethyl)ether	U		499
Bis(2-ethylhexyl)phthalate	U		499
4-Bromophenyl phenyl ether	U		499
Butyl benzyl phthalate	U		499
Carbazole	U		499
Caprolactam	U		499
4-Chloroaniline	U		499
2-Chloronaphthalene	U		499
2-Chlorophenol	U		499
4-Chlorophenyl phenyl ether	U		499
4-Chloro-3-methylphenol	U		499
Chrysene	U		499
Dibenzofuran	U		499
Dibenz (a,h) anthracene	U		499
1,2-Dichlorobenzene	U		499
1,3-Dichlorobenzene	U		499
1,4-Dichlorobenzene	U		499
3,3´-Dichlorobenzidine	U		499
2,4-Dichlorophenol	U		499
Diethyl phthalate	U		499
2,4-Dimethylphenol	U		499
Dimethyl phthalate	U		499
2,4-Dinitrophenol	U		1,990
2,4-Dinitrotoluene	U		499
2,6-Dinitrotoluene	U		499
4,6-Dinitro-2-methylphenol	U		1,990
Di-n-butyl phthalate	U		499
Di-n-octyl phthalate	U		499
Fluoranthene	U		199
Fluorene	U		199

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

Blank (B4I2205-BLK1)

Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets (Continued)

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit
Hexachlorobenzene	U		499
Hexachlorobutadiene	U		499
Hexachlorocyclopentadiene	U		499
Hexachloroethane	U		499
Indeno (1,2,3-cd) pyrene	U		499
Isophorone	U		499
2-Methylnaphthalene	U		199
2-Methylphenol	U		499
3 &/or 4-Methylphenol	U		499
Naphthalene	U		199
2-Nitroaniline	U		798
3-Nitroaniline	U		798
4-Nitroaniline	U		798
Nitrobenzene	U		499
2-Nitrophenol	U		499
4-Nitrophenol	U		1,300
N-Nitrosodiphenylamine	U		499
N-Nitrosodi-n-propylamine	U		499
Pentachlorophenol	U		499
Phenanthrene	U		199
Phenol	U		499
Pyrene	U		199
1,2,4-Trichlorobenzene	U		499
2,4,5-Trichlorophenol	U		499
2,4,6-Trichlorophenol	U		499

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Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

LCS (B4I2205-BS1)
Prepared: 9/23/2014 Analyzed: 9/24/2014

Surrogates

ANALYTE	Result µg/kg dry	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	5,270		7,260	72.6	29-100
Phenol-d5	5,450		7,260	75.1	37-100
2-Chlorophenol-d4	5,350		7,260	73.7	33-100
1,2-Dichlorobenzene-d4	3,040		4,840	62.9	28-100
Nitrobenzene-d5	3,410		4,840	70.4	28-100
2-Fluorobiphenyl	3,400		4,840	70.2	37-110
2,4,6-Tribromophenol	5,950		7,260	82.0	41-137
Terphenyl-d14	3,980		4,840	82.2	46-138

LCS (B4I2205-BS1)
Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit	Spike Level	%REC	%REC Limits
Acenaphthene	3,570		193	4,840	73.8	52-103
2-Chlorophenol	5,110		484	7,260	70.4	44-101
4-Chloro-3-methylphenol	5,460		484	7,260	75.3	49-116
1,4-Dichlorobenzene	2,950		484	4,840	61.0	35-100
2,4-Dinitrotoluene	3,900		484	4,840	80.7	51-120
4-Nitrophenol	6,780		1,260	7,260	93.5	43-139
N-Nitrosodi-n-propylamine	3,440		484	4,840	71.1	44-105
Pentachlorophenol	6,500		484	7,260	89.6	28-121
Phenol	5,270		484	7,260	72.6	43-105
Pyrene	3,370		193	4,840	69.8	57-121
1,2,4-Trichlorobenzene	3,220		484	4,840	66.6	43-102

Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

Matrix Spike (B4I2205-MS1)

Source: 1409028-03 Prepared: 9/23/2014 Analyzed: 9/24/2014

Surrogates

ANALYTE	Result µg/kg dry	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	6,540		9,640	67.8	29-100
Phenol-d5	6,780		9,640	70.3	37-100
2-Chlorophenol-d4	6,630		9,640	68.8	33-100
1,2-Dichlorobenzene-d4	3,780		6,430	58.8	28-100
Nitrobenzene-d5	4,250		6,430	66.1	28-100
2-Fluorobiphenyl	4,400		6,430	68.4	37-110
2,4,6-Tribromophenol	8,020		9,640	83.1	41-137
Terphenyl-d14	5,300		6,430	82.4	46-138

Matrix Spike (B4I2205-MS1)

Source: 1409028-03 Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC	%REC Limits
Acenaphthene	4,700		257	6,430		73.1	37-119
2-Chlorophenol	6,430		643	9,640		66.7	33-100
4-Chloro-3-methylphenol	6,930		643	9,640		71.9	45-122
1,4-Dichlorobenzene	3,650		643	6,430		56.8	26-100
2,4-Dinitrotoluene	4,830		643	6,430		75.1	44-125
4-Nitrophenol	8,700		1,670	9,640		90.2	47-141
N-Nitrosodi-n-propylamine	4,350		643	6,430		67.7	34-103
Pentachlorophenol	8,480		643	9,640		87.9	16-134
Phenol	6,620		643	9,640		68.7	37-102
Pyrene	4,850		257	6,430		75.4	42-138
1,2,4-Trichlorobenzene	4,090		643	6,430		63.7	33-100

Semivolatiles by CLP OLM04.2 - GC/MS - Quality Control

Batch: B4I2205 **Sample Type: Solid**

Matrix Spike Dup (B4I2205-MSD1)

Source: 1409028-03 Prepared: 9/23/2014 Analyzed: 9/24/2014

Surrogates

ANALYTE	Result µg/kg dry	Analyte Qualifier	Spike Level	%REC	%REC Limits
2-Fluorophenol	6,360		9,600	66.2	29-100
Phenol-d5	6,630		9,600	69.1	37-100
2-Chlorophenol-d4	6,510		9,600	67.8	33-100
1,2-Dichlorobenzene-d4	3,450		6,400	53.9	28-100
Nitrobenzene-d5	4,070		6,400	63.6	28-100
2-Fluorobiphenyl	4,280		6,400	66.8	37-110
2,4,6-Tribromophenol	7,580		9,600	78.9	41-137
Terphenyl-d14	5,570		6,400	87.0	46-138

Matrix Spike Dup (B4I2205-MSD1)

Source: 1409028-03 Prepared: 9/23/2014 Analyzed: 9/24/2014

Targets

ANALYTE	Result µg/kg dry	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acenaphthene	4,660		256	6,400		72.8	37-119	0.37	30
2-Chlorophenol	6,270		640	9,600		65.2	33-100	2.19	37
4-Chloro-3-methylphenol	6,970		640	9,600		72.6	45-122	0.93	26
1,4-Dichlorobenzene	3,300		640	6,400		51.6	26-100	9.71	34
2,4-Dinitrotoluene	5,030		640	6,400		78.5	44-125	4.40	20
4-Nitrophenol	9,170		1,660	9,600		95.4	47-141	5.68	30
N-Nitrosodi-n-propylamine	4,210		640	6,400		65.7	34-103	2.96	32
Pentachlorophenol	8,360		640	9,600		87.1	16-134	0.96	35
Phenol	6,440		640	9,600		67.1	37-102	2.37	36
Pyrene	5,080		256	6,400		79.4	42-138	5.15	32
1,2,4-Trichlorobenzene	3,860		640	6,400		60.3	33-100	5.38	33

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USEPA
DateShipped: 9/17/2014
CarrierName: FedEx
AirbillNo: 771189623670

CHAIN OF CUSTODY RECORD
Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 404-783-4875

No: 6-091714-143001-0007
Cooler #: 1
Lab: EPA Region 6
Lab Phone: 281-983-2137

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-05SD	SBA-ESI-05	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N
	SBA-ESI-06SD	SBA-ESI-06	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N
	SBA-ESI-07SD	SBA-ESI-07	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	Y
	SBA-ESI-08SD	SBA-ESI-08	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N
	SBA-ESI-09SD	SBA-ESI-09	Semivolatiles (SVOAs)	Sediment	9/16/2014	1	8 oz jar	4 C	N
	SBA-ESI-80SD	SBA-ESI-08	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz jar	4 C	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
6	[signature]	9/17/14	FedEx	9/17/14	16:30				[signature]	9/18/14	9:30

TempBlank=3°

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USEPA

CHAIN OF CUSTODY RECORD

No: 6-091814-135602-0009

DateShipped: 9/18/2014
CarrierName: FedEx
AirbillNo: 771200274299

Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 4047834875

Cooler #: 3
Lab: EPA Region 6
Lab Phone: 281-983-2137

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-01SD	SBA-ESI-01	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-02SD	SBA-ESI-02	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-03SD	SBA-ESI-03	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-04SD	SBA-ESI-04	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-10SD	SBA-ESI-10	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-11SD	SBA-ESI-11	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-12SD	SBA-ESI-12	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-13MW	SBA-ESI-13	Semivolatiles (SVOAs)	Ground Water	9/17/2014	4	1 liter amber	4 C	Y
	SBA-ESI-16SD	SBA-ESI-16	Semivolatiles (SVOAs)	Sediment	9/18/2014	1	8 oz. jar	4 C	N
	SBA-ESI-30SD	SBA-ESI-03	Semivolatiles (SVOAs)	Sediment	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-31MW	SBA-ESI-13	Semivolatiles (SVOAs)	Ground Water	9/17/2014	2	1 liter amber	4 C	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
15	[signature]	9/18/14	FedEx	9/18/14	1700				[signature]	9/19/14	10:10

Temp Blank = 4°C

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Notes and Definitions

J	The identification of the analyte is acceptable; the reported value is an estimate.
A	This sample was extracted at a single acid pH.
HTS	Sample was prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.
ABN	Acid Base Neutrals (Semivolatile Compounds)
AES	Atomic Emission Spectrometer
BS	Blank Spike
CVAA	Cold Vapor Atomic Absorption
DCB	Decachlorobiphenyl
ECD	Electron Capture Detector
GC	Gas Chromatograph
ICP	Inductively Coupled Plasma
ISTD	Internal Standard
LCS	Laboratory Control Sample
MS	Mass Spectrometer
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	Not Applicable
NPD	Nitrogen Phosphorous Detector
NR	Not Reported
PCB	Polychlorinatedbiphenyl
RL	Reporting Limit
RT	Retention Time
TCLP	Toxicity Characteristic Leaching Procedure

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TCMX	Tetrachloro-meta-xylene
U	Undetected
VOA	Volatile Organic Analysis
#	Out of QC limits

Initial pressure in air analyses is the pressure at which the canister was received in psia (pounds *per* square inch absolute pressure).

The pH reported for Volatile liquid samples was tested using a 0-14 pH indicator strip for the purpose of verifying chemical preservation.

The statistical software used for the reporting of toxicity data is ToxCalc 5.0.32, Environmental Toxicity Data Analysis System 1994-2007 Tidepool Scientific Software.

Appendix H

ALS Environmental Analytical Data

October 16, 2014 Service Request No:E1401160

Lisa Graczyk
Dynamac Corporation
20 North Wacker Drive, Suite 2035
Chicago, IL 60606

Laboratory Results for: Start Region VI / SBA Shipyard

Dear Lisa,

Enclosed are the results of the sample(s) submitted to our laboratory September 19, 2014
For your reference, these analyses have been assigned our service request number **E1401160.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2284. You may also contact me via email at Nicole.Brown@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Nicole Brown

Nicole Brown
Project Manager

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ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Dynamac Corporation	**Service Request No.:**	E1401160
Project:	Start Region VI / SBA Shipyard	**Date Received:**	09/19/14
Sample Matrix:	Solid Waste, Soil		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One waste soil and one solid waste sample were received for analysis at ALS Environmental on 09/19/14.

The samples were received at 1 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1400606-01 and EQ1400620-01 contained low levels of various compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

One compound, 2378-TCDF, was slightly above the MRL in the method blank EQ1400606-01. The associated samples result is flagged with a "B" qualifier, as appropriate.

MS/MSD

EQ1400606 & EQ1400620: One Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/MSD for these extraction batches.

The batch precision (MS/DMS) measurements were determined on another order in the extraction batch. The MS/DMS results are not included in this report.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Y flags – Labeled Standards

Due to high levels of matrix interferences, very low recoveries of labeled standards were recovered for sample SBA-ESI-15 (E1401160-002). The sample went through multiple clean up procedures to achieve detection of target compounds. The sample was re-extracted using a 2 gram sample size. However, the second extraction resulted in even poorer recoveries and worse detections. The original extraction is reported for this sample.

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Client: Dynamac Corporation **Service Request:** E1401160
Project: Start Region VI / SBA Shipyard/S109-22H

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1401160-001	SBA-ESI-14	9/17/2014	0000
E1401160-002	SBA-ESI-15	9/17/2014	0000

Service Request Summary

Folder #:	**E1401160**	Project Chemist:	Nicole Brown
Client Name:	Dynamac Corporation	Originating Lab:	HOUSTON
Project Name:	Start Region VI / SBA Shipyard	Logged By:	ALOPEZ
Project Number:	S109-22H	Date Received:	09/19/14
		Internal Due Date:	10/10/2014
Report To:	Lisa Graczyk Dynamac Corporation 20 North Wacker Drive, Suite 2035 Chicago, IL 60606 USA	QAP:	LAB QAP
		Qualifier Set:	Lab Standard
		Formset:	Lab Standard
		Merged?:	N
Phone Number:	312-424-3339	Report to MDL?:	N, Y
Cell Number:		P.O. Number:	Credit Approved on 9/16/14
Fax Number:			
E-mail:	lgraczyk@dynamac.com	EDD:	SCRIBE - Weston SIMI

2 -N/A N/A
2 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: SMO, EHRMS-WIC 8D, In Lab

Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON PCDD PCDF/8290	HOUSTON Total Solids/ALS SOP
E1401160-001	SBA-ESI-14	Soil	09/17/14 0000	IV	IV
E1401160-002	SBA-ESI-15	Solid Waste	09/17/14 0000	IV	IV

Folder Comments:

SCRIBE Weston EDD, wHO 2005 ND = 0

Sample -02 requires re-extraction due to high levels of sample matrix interferences causing low labeled standard recoveries. NB 10/10/14

EPA START Superfund,2005 TEFs ND = 0 confirmed,data pkg lvl 4,SCRIBE EDD,Note: "Oil/Sludge" matrix listed on bid form.

Service Request Summary

Folder #:	**E1401160**	Project Chemist:	Nicole Brown	
Client Name:	Dynamac Corporation	Originating Lab:	HOUSTON	
Project Name:	Start Region VI / SBA Shipyard	Logged By:	ALOPEZ	
Project Number:	S109-22H	Date Received:	09/19/14	
		Internal Due Date:	10/10/2014	
Report To:	Lisa Graczyk Dynamac Corporation 20 North Wacker Drive, Suite 2035 Chicago, IL 60606 USA	QAP:	LAB QAP	
		Qualifier Set:	Lab Standard	
		Formset:	Lab Standard	
		Merged?:	N	
Phone Number:	312-424-3339	Report to MDL?:	N, Y	
Cell Number:		P.O. Number:	Credit Approved on 9/16/14	
Fax Number:		EDD:	SCRIBE - Weston SIMI	
E-mail:	lgraczyk@dynamac.com			

2 -N/A N/A
2 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: SMO, EHRMS-WIC 8D, In Lab

Pressure Gas:

Superset Summary

Service Request: E1401160 **SuperSet Reference:** 14-0000305337 rev 00

Analytical Method: **8290**

Calibrations: 03/25/14

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P174008	P174000	P174027	E1401160-002
P173841	P173831	P231791	EQ1400606-02
P174027	P174024	P174027	EQ1400620-01
P174009	P174000	P174027	EQ1400620-02

Calibrations: 08/24/14

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P231754	P231750	P231791	E1401160-001
P231791	P231790	P231791	EQ1400606-01

Data Qualifier Flags – Dioxin/Furans

- **B** Indicates the associated analyte is found in the method blank, as well as in the sample.
- **C** Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225). The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result should be used in determining the TEQ value for TCDF.
- **E** Indicates an estimated value – used when the analyte concentration exceeds the upper end of the linear calibration range.
- **J** Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).
- **K** EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.
- **U** Indicates the compound was analyzed and not detected.
- **Y** Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y'. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.
- **ND** Indicates concentration is reported as 'Not Detected.'
- **S** Peak is saturated; data not reportable.
- **P** Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
- **Q** Lock-mass interference by chlorodiphenyl ether compounds.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2014
Arizona Department of Health Services	AZ0793	5/27/2015
Arkansas Department of Environmental Quality	14-038-0	6/16/2015
California Department of Health Services	2452	2/28/2015
Florida Department of Health	E87611	6/30/2015
Hawaii Department of Health	TX02694	6/30/2015
Kansas Department of Health and Environment	E-10406	1/31/2015
Louisiana Department of Environmental Quality	03048	12/31/2014
Louisiana Department of Health and Hospitals	TX2694	6/30/2015
Maine Center for Disease Control and Prevention	2014019	12/31/2014
Maryland Department of the Environment	343	6/30/2015
Michigan Depratment of Environmental Quality	9971	6/30/2015
Minnesota Department of Health	TX02694	12/31/2014
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2015
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2015
New Jersey Department of Environmental Protection	NLC140001	6/30/2015
New Mexico Environment Department	TX02694	6/30/2015
New York Department of Health	11707	4/1/2015
Oklahoma Department of Environmental Quality	2014-124	8/31/2015
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2015
Pennsylvania Department of Environmental Protection	68-03441	6/30/2015
Tennessee Department of Environment and Concervation	04016	6/30/2015
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2015
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2015
Washington Department of Health	c819	11/14/2014
West Virginia Department of Environmental Protection	347	6/30/2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1401160 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 10/07/14	Analyst: JC	Samples: 001

Second Level - Data Review – to be filled by person doing peer review

Date: 10/08/14	Analyst: JR	Samples: 001

ALS ENVIRONMENTAL – Houston

Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1401160 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 10/16/14	Analyst: Jc	Samples: 002

Second Level - Data Review – to be filled by person doing peer review

Date: 10/16/14	Analyst:	Samples: 002

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

USEPA
DateShipped: 9/18/2014
CarrierName: FedEx
AirbillNo: 771200019315

CHAIN OF CUSTODY RECORD
Site #: LAD008434185
Contact Name: Paul Moissan
Contact Phone: 404-783-4875

No: 6-091814-114226-0008
Cooler #: 2
Lab: ALS Environmental
Lab Phone: 281-530-5656

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	SBA-ESI-14	SBA-ESI-14	Dioxins / Furans	Waste soil	9/17/2014	1	8 oz. jar	4 C	N
	SBA-ESI-15	SBA-ESI-15	Dioxins / Furans	Waste	9/17/2014	1	8 oz. jar	4 C	N

E1401160 5
Dynamac Corporation
Start Region VI / SBA Shipyard

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
2	[signature]	9/18/14	FEDEX	9/18/14	1700						
			[signature]	9/19/14	1030						

Cooler Receipt Form

Project Chemist UB

Client/Project Dynamic Corp

Thermometer ID SMO

Date/Time Received: 9/19/14 1030 Initials: AL Date/Time Logged in: 9/19/14 Initials AL

1. Method of delivery: US Mail ~~Fed Ex~~ UPS DHL Courier Client
2. Samples received in: ~~Cooler~~ Box Envelope Other
3. Were custody seals on coolers? ~~Yes~~ No — If yes, how many and where? 2 seals
   Were they intact? ~~Yes~~ No N/A
   Were they signed and dated? ~~Yes~~ No N/A
4. Packing Material: Inserts Baggies ~~Bubble Wrap~~ Gel Packs ~~Wet Ice~~ Sleeves Other
5. Foreign or Regulated Soil? Yes ~~No~~ Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7712 0001 9315		9/19/14	1130	AL	0/-1	

6. Were custody papers properly filled out (ink, signed, dated, etc)? ~~Yes~~ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ~~Yes~~ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ~~Yes~~ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ~~Yes~~ No
10. Did sample labels and tags agree with custody documents? ~~Yes~~ No

Notes, Discrepancies, & Resolutions:

Service request Label:

E1401160 5
Dynamac Corporation
Start Region VI / SBA Shipyard

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 219212 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 9/27/14 03:45 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1401133-001	PP 001B	.01	8290/PCDD PCDF		Sediment	10.181g	Watery Mushy Black Roots
2	E1401149-001	BP10LAA01-FL-1	.01	8290A/PCDD PCDF		Soil	10.244g	Rocky Brown Roots
3	E1401149-002	BP10LAA01-SW-1	.01	8290A/PCDD PCDF		Soil	10.234g	Rocky Brown Roots
4	E1401149-003	BP10LAA01-SW-2	.01	8290A/PCDD PCDF		Soil	10.373g	Soily w/ Rocks Brown
5	E1401149-004	BP10LAA01-SW-1-D	.01	8290A/PCDD PCDF		Soil	10.198g	Soily w/ Rocks Brown
6	E1401149-005	BP10LAA01-SW-3	.01	8290A/PCDD PCDF		Soil	10.349g	Soily w/ Rocks Brown
7	E1401149-006	BP10LAA01-SW-4	.01	8290A/PCDD PCDF		Soil	10.137g	Soily w/ Rocks Brown
8	E1401150-001	Reel #: 14-030905011	.01	8290/PCDD PCDF		Paperboard	10.277g	Hard paper Like Cardboard White
9	E1401160-001	SBA-ESI-14	.01	8290/PCDD PCDF		Soil	10.164g	Moist Soil Griddy Rocks
10	E1401161-001	Comp-WMXU0085809	.01	8290/PCDD PCDF		Soil	10.160g	Griddy Moist Granular Brown
11	E1401161-002	Comp-WMXU0085497	.01	8290/PCDD PCDF		Soil	10.176g	Griddy Moist Granular Brown
12	E1401181-001	AR02950	.01	8290/PCDD PCDF		Biosolids Solids	10.325g	Soft Soil Black
13	EQ1400606-01	MB		8290A/PCDD PCDF		Solid	10.252g	
14	EQ1400606-02	LCS		8290A/PCDD PCDF		Solid	10.142g	
15	EQ1400606-03	BP10LAA01-FL-1 MS	.01	8290A/PCDD PCDF		Solid	10.058g	
16	EQ1400606-04	BP10LAA01-FL-1 DMS	.01	8290A/PCDD PCDF		Solid	10.162g	
17	J1407324-001	9042O	.02	8290A/PCDD PCDF		Paperboard	10.196g	Paperboard White Hard
18	J1407324-002	9043O	.02	8290A/PCDD PCDF		Paperboard	10.038g	Paperboard White Hard
19	J1407324-003	9044O	.02	8290A/PCDD PCDF		Paperboard	10.189g	Paperboard White Hard
20	T1401389-001	PIT-BA+3/8 82114-003	.03	8290/PCDD PCDF		Ash	10.296g	Spring/Coil Black
21	T1401389-002	PIT-BA-3/8 82114-003	.03	8290/PCDD PCDF		Ash	10.327g	Black Ash/Rocks
22	T1401432-001	del-FA-091814-003	.03	8290/PCDD PCDF		Ash	2.428g	Fly Ash/Grey
23	T1401432-002	del-mixedBA-091814-003	.03	8290/PCDD PCDF		Ash	10.342g	Black Ash/Rocks

Preparation Information Benchsheet

Prep Run#: 219212 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 9/27/14 03:45 PM

Spiking Solutions

Name:	1613B Labeled Working Standard	Inventory ID	74988	Logbook Ref:	2-4 ng/ml 74988 WM 9/23/14	Expires On:	09/17/2015

E1401150-001	1,000.00µL	E1401160-001	1,000.00µL	E1401161-001	1,000.00µL	E1401161-002	1,000.00µL	E1401181-001	1,000.00µL	J1407324-001	1,000.00µL
J1407324-002	1,000.00µL	J1407324-003	1,000.00µL	T1401389-001	1,000.00µL	T1401389-002	1,000.00µL				

Name:	1613B Labeled Working Standard	Inventory ID	74990	Logbook Ref:	2-4 ng/ml 74990 WM 9/23/14	Expires On:	09/17/2015

E1401133-001	1,000.00µL	E1401149-001	1,000.00µL	E1401149-002	1,000.00µL	E1401149-003	1,000.00µL	E1401149-004	1,000.00µL	E1401149-005	1,000.00µL
E1401149-006	1,000.00µL	EQ1400606-01	1,000.00µL	EQ1400606-01	1,000.00µL	EQ1400606-02	1,000.00µL	EQ1400606-02	1,000.00µL	EQ1400606-03	1,000.00µL
EQ1400606-04	1,000.00µL										

Name:	8290/1613B Cleanup Working Standard	Inventory ID	75097	Logbook Ref:	75097 CID 09/26/2014	Expires On:	03/25/2015

E1401133-001	100.00µL	E1401149-001	100.00µL	E1401149-002	100.00µL	E1401149-003	100.00µL	E1401149-004	100.00µL	E1401149-005	100.00µL
E1401149-006	100.00µL	E1401150-001	100.00µL	E1401160-001	100.00µL	E1401161-001	100.00µL	E1401161-002	100.00µL	E1401181-001	100.00µL
EQ1400606-01	100.00µL	EQ1400606-01	100.00µL	EQ1400606-02	100.00µL	EQ1400606-02	100.00µL	EQ1400606-03	100.00µL	EQ1400606-04	100.00µL
J1407324-001	100.00µL	J1407324-002	100.00µL	J1407324-003	100.00µL	T1401389-001	100.00µL	T1401389-002	100.00µL	T1401432-001	100.00µL
T1401432-002	100.00µL										

Name:	1613B Labeled Working Standard	Inventory ID	75102	Logbook Ref:	2-4 ng/ml 75102 WM 9/26/14	Expires On:	09/17/2015

T1401432-001	1,000.00µL	T1401432-002	1,000.00µL

Name:	1613B Matrix Working Standard	Inventory ID	75110	Logbook Ref:	2-20 ng/ml 75110 TL 9/26/14	Expires On:	09/26/2015

EQ1400606-02	100.00µL	EQ1400606-02	100.00µL	EQ1400606-03	100.00µL	EQ1400606-04	100.00µL

Preparation Materials

Carbon, High Purity	AL 09/24/14 (75056)	Ethyl Acetate 99.9% Minimum EtOAc	LM 09/23/14 (75019)	Glass Wool	AL 08/06/14 (73215)
Sulfuric Acid Reagent Grade H2SO4	LM 09/16/14 (74784)	Hexanes 95%	LM 09/16/14 (74783)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 08/18/14 (73648)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 09/09/14 (74580)	Tridecane (n-Tridecane)	AL 08/19/14 (73695)	Silica Gel Reagent Grade	LM 09/18/14 (74887)
Toluene 99.9% Minimum	LM 09/18/14 (74840)	Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)

Preparation Information Benchsheet

Prep Run#: 219212 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 9/27/14 03:45 PM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	9/27/14 15:45	Started:	10/2/14 08:00	Started:	10/2/14 12:30	Started:	10/2/14 18:00
Finished:	9/27/14 16:55	Finished:	10/2/14 09:30	Finished:	10/2/14 14:20	Finished:	10/3/14 08:30
By:	DEDWARDS	By:	LMCCRINK	By:	CDIAZ	By:	DEDWARDS
Comments		Comments		Comments		Comments	

Comments:

Reviewed By: JWP 100314 Date: Spike Witness: JCHAU Date:

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined

Yes No

Preparation Information Benchsheet

Prep Run#: 219535 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 10/4/14 04:11 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1401160-002	SBA-ESI-15	.01	8290/PCDD PCDF		Solid Waste	10.212g	Moist Mud Soil Black
2	E1401183-001	BJ12LAA04-FL-1	.01	8290A/PCDD PCDF		Soil	10.019g	Moist ,Thick, Mushy, Brown
3	E1401183-002	BJ12LAA04-FL-2	.01	8290A/PCDD PCDF		Soil	10.085g	Moist ,Thick, Mushy, Brown
4	E1401183-003	BJ12LAA04-FL-3	.01	8290A/PCDD PCDF		Soil	10.240g	Moist ,Thick, Mushy, Brown
5	E1401183-004	BJ12LAA04-SW-1	.01	8290A/PCDD PCDF		Soil	10.182g	Thick, Brown, Clay
6	E1401183-005	BJ12LAA04-SW-2	.01	8290A/PCDD PCDF		Soil	10.418g	Thick, Brown, Clay
7	E1401183-006	BJ12LAA04-SW-3	.01	8290A/PCDD PCDF		Soil	10.462g	Muddy Cumbles of Dirt, Brown
8	E1401183-007	BJ12LAA04-SW-4	.01	8290A/PCDD PCDF		Soil	10.134g	Muddy Cumbles of Dirt, Brown
9	E1401183-008	BJ12LAA04-SW-5	.01	8290A/PCDD PCDF		Soil	10.209g	Muddy Cumbles of Dirt, Brown
10	E1401183-009	BJ12LAA04-SW-6	.01	8290A/PCDD PCDF		Soil	10.180g	Muddy Cumbles of Dirt, Brown
11	E1401183-010	BJ12LAA04-SW-7	.01	8290A/PCDD PCDF		Soil	10.365g	Muddy Cumbles of Dirt, Brown
12	E1401183-011	BJ12LAA04-SW-7-D	.01	8290A/PCDD PCDF		Soil	10.363g	Thick, Brown, Clay
13	E1401183-012	BJ12LAA04-SW-8	.01	8290A/PCDD PCDF		Soil	10.024g	Thick, Brown, Clay
14	E1401183-013	BJ12LAA04-SW-9	.01	8290A/PCDD PCDF		Soil	10.329g	Thick, Brown, Clay
15	E1401183-014	BJ12LAA04-SW-9-D	.01	8290A/PCDD PCDF		Soil	10.127g	Thick, Brown, Clay
16	E1401183-015	BJ12LAA04-SW-10	.01	8290A/PCDD PCDF		Soil	10.470g	Thick, Brown, Clay
17	E1401191-001	HA-1 Comp	.01	8290/PCDD PCDF		Soil	10.330g	Wood Chips, Dirt, Rocks, Brown
18	E1401191-002	HA-2 Comp	.01	8290/PCDD PCDF		Soil	10.269g	Wood Chips, Dirt, Rocks, Brown
19	E1401191-003	A-1 Comp	.01	8290/PCDD PCDF		Soil	10.127g	Brown Smooth Dirt w/Rocks
20	E1401191-004	A-2 Comp	.01	8290/PCDD PCDF		Soil	10.257g	Brown Smooth Dirt w/Rocks
21	EQ1400620-01	MB		8290A/PCDD PCDF		Solid	10.479g	
22	EQ1400620-02	LCS		8290A/PCDD PCDF		Solid	10.415g	
23	EQ1400620-03	BJ12LAA04-SW-10 MS	.01	8290A/PCDD PCDF		Solid	10.291g	
24	EQ1400620-04	BJ12LAA04-SW-10 DMS	.01	8290A/PCDD PCDF		Solid	10.244g	

Preparation Information Benchsheet

Prep Run#: 219535 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 10/4/14 04:11 PM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	75110	Logbook Ref:	2-20 ng/ml 75110 TL 9/26/14	Expires On:	09/26/2015

EQ1400620-02	100.00µL	EQ1400620-02	100.00µL	EQ1400620-03	100.00µL	EQ1400620-04	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	75123	Logbook Ref:	2-4 ng/ml 75123 WM 9/29/14	Expires On:	09/29/2015

E1401160-002	1,000.00µL	E1401183-001	1,000.00µL	E1401183-002	1,000.00µL	E1401183-003	1,000.00µL	E1401183-004	1,000.00µL	E1401183-005	1,000.00µL
E1401183-006	1,000.00µL	E1401183-007	1,000.00µL	E1401183-008	1,000.00µL	E1401183-009	1,000.00µL	E1401183-010	1,000.00µL	E1401183-011	1,000.00µL
E1401183-012	1,000.00µL	E1401183-013	1,000.00µL	E1401183-014	1,000.00µL	E1401183-015	1,000.00µL	E1401191-001	1,000.00µL	E1401191-002	1,000.00µL
E1401191-003	1,000.00µL	EQ1400620-01	1,000.00µL	EQ1400620-01	1,000.00µL	EQ1400620-02	1,000.00µL	EQ1400620-02	1,000.00µL	EQ1400620-03	1,000.00µL
EQ1400620-04	1,000.00µL										

Name:	1613B Labeled Working Standard	Inventory ID	75328	Logbook Ref:	2-4 ng/ml 75328 TL 10/2/14	Expires On:	10/02/2015

E1401191-004	1,000.00µL

Name:	8290/1613B Cleanup Working Standard	Inventory ID	75408	Logbook Ref:	75408 LM 10/06/2014	Expires On:	10/06/2015

E1401160-002	100.00µL	E1401183-001	100.00µL	E1401183-002	100.00µL	E1401183-003	100.00µL	E1401183-004	100.00µL	E1401183-005	100.00µL
E1401183-006	100.00µL	E1401183-007	100.00µL	E1401183-008	100.00µL	E1401183-009	100.00µL	E1401183-010	100.00µL	E1401183-011	100.00µL
E1401183-012	100.00µL	E1401183-013	100.00µL	E1401183-014	100.00µL	E1401183-015	100.00µL	E1401191-001	100.00µL	E1401191-002	100.00µL
E1401191-003	100.00µL	E1401191-004	100.00µL	EQ1400620-01	100.00µL	EQ1400620-01	100.00µL	EQ1400620-02	100.00µL	EQ1400620-02	100.00µL
EQ1400620-03	100.00µL	EQ1400620-04	100.00µL								

Preparation Materials

Carbon, High Purity	AL 09/24/14 (75056)	Ethyl Acetate 99.9% Minimum EtOAc	LM 09/23/14 (75019)	Glass Wool	AL 08/06/14 (73215)
Sulfuric Acid Reagent Grade H2SO4	LM 09/16/14 (74784)	Hexanes 95%	LM 09/26/14 (75115)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	LM 09/02/14 (74231)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 09/09/14 (74580)
Tridecane (n-Tridecane)	AL 08/19/14 (73695)	Silica Gel Reagent Grade	LM 09/18/14 (74887)	Toluene 99.9% Minimum	LM 09/30/14 (75177)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	10/4/14 16:11	Started:	10/7/14 18:00	Started:	10/8/14 08:00	Started:	10/8/14 13:20
Finished:	10/4/14 18:24	Finished:	10/7/14 18:45	Finished:	10/8/14 10:30	Finished:	10/8/14 16:00
By:	DEDWARDS	By:	HLEUNG	By:	CDIAZ	By:	DEDWARDS
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 219535 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method **Prep Date/Time:** 10/4/14 04:11 PM

Comments: ______

Reviewed By: JWP 100914 Date: ______

Chain of Custody

Relinquished By:		Date:		Extracts Examined	
Received By:		Date:		Yes	No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	ng/Kg
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 01:50
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231754	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231750

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.834		0.242	0.563	0.85	1.001	1
1,2,3,7,8-PeCDD	1.66	**BJK**	0.161	2.82	1.92	1.000	1
1,2,3,4,7,8-HxCDD	1.22	**BJK**	0.117	2.82	0.97	1.000	1
1,2,3,6,7,8-HxCDD	3.51		0.137	2.82	1.40	1.000	1
1,2,3,7,8,9-HxCDD	3.40		0.117	2.82	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	37.6		0.181	2.82	0.96	1.000	1
OCDD	418		0.782	5.63	0.89	1.000	1
2,3,7,8-TCDF	2.83	**B**	0.207	0.563	0.76	1.001	1
1,2,3,7,8-PeCDF	2.83	**B**	0.109	2.82	1.49	1.001	1
2,3,4,7,8-PeCDF	4.04	**B**	0.0836	2.82	1.51	1.000	1
1,2,3,4,7,8-HxCDF	3.05	**B**	0.139	2.82	1.41	1.000	1
1,2,3,6,7,8-HxCDF	2.54	**BJ**	0.108	2.82	1.16	1.000	1
1,2,3,7,8,9-HxCDF	1.06	**BJ**	0.143	2.82	1.35	1.000	1
2,3,4,6,7,8-HxCDF	5.04		0.143	2.82	1.42	1.000	1
1,2,3,4,6,7,8-HpCDF	25.0		0.211	2.82	1.15	1.000	1
1,2,3,4,7,8,9-HpCDF	1.53	**BJK**	0.229	2.82	1.47	1.000	1
OCDF	14.7	**B**	0.548	5.63	0.87	1.005	1
Total Tetra-Dioxins	7.73		0.242	0.563	0.81		1
Total Penta-Dioxins	21.4		0.161	2.82	1.72		1
Total Hexa-Dioxins	44.9		0.123	2.82	1.24		1
Total Hepta-Dioxins	90.4		0.181	2.82	1.03		1
Total Tetra-Furans	28.4		0.207	0.563	0.76		1
Total Penta-Furans	48.4		0.0782	2.82	1.58		1
Total Hexa-Furans	39.5		0.132	2.82	1.31		1
Total Hepta-Furans	39.7		0.219	2.82	1.15		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	Percent
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 01:50
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231754	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231750

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	965.569	48		40-135	0.77	1.026
13C-1,2,3,7,8-PeCDD	2000	740.123	37	**Y**	40-135	1.56	1.206
13C-1,2,3,4,7,8-HxCDD	2000	982.035	49		40-135	1.25	0.990
13C-1,2,3,6,7,8-HxCDD	2000	807.600	40		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	842.150	42		40-135	1.09	1.066
13C-OCDD	4000	1437.043	36	**Y**	40-135	0.90	1.139
13C-2,3,7,8-TCDF	2000	948.360	47		40-135	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	718.313	36	**Y**	40-135	1.56	1.160
13C-2,3,4,7,8-PeCDF	2000	729.340	36	**Y**	40-135	1.58	1.196
13C-1,2,3,4,7,8-HxCDF	2000	927.094	46		40-135	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	967.477	48		40-135	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	845.276	42		40-135	0.52	1.007
13C-2,3,4,6,7,8-HxCDF	2000	891.020	45		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	617.567	31	**Y**	40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	921.582	46		40-135	0.42	1.079
37Cl-2,3,7,8-TCDD	800	380.903	48		40-135	NA	1.027

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	ng/Kg
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.834**	0.242	0.563	1	1	0.834
1,2,3,7,8-PeCDD	**1.66**	0.161	2.82	1	1	1.66
1,2,3,4,7,8-HxCDD	**1.22**	0.117	2.82	1	0.1	0.122
1,2,3,6,7,8-HxCDD	**3.51**	0.137	2.82	1	0.1	0.351
1,2,3,7,8,9-HxCDD	**3.40**	0.117	2.82	1	0.1	0.340
1,2,3,4,6,7,8-HpCDD	**37.6**	0.181	2.82	1	0.01	0.376
OCDD	**418**	0.782	5.63	1	0.0003	0.125
2,3,7,8-TCDF	**2.83**	0.207	0.563	1	0.1	0.283
1,2,3,7,8-PeCDF	**2.83**	0.109	2.82	1	0.03	0.0849
2,3,4,7,8-PeCDF	**4.04**	0.0836	2.82	1	0.3	1.21
1,2,3,4,7,8-HxCDF	**3.05**	0.139	2.82	1	0.1	0.305
1,2,3,6,7,8-HxCDF	**2.54**	0.108	2.82	1	0.1	0.254
1,2,3,7,8,9-HxCDF	**1.06**	0.143	2.82	1	0.1	0.106
2,3,4,6,7,8-HxCDF	**5.04**	0.143	2.82	1	0.1	0.504
1,2,3,4,6,7,8-HpCDF	**25.0**	0.211	2.82	1	0.01	0.250
1,2,3,4,7,8,9-HpCDF	**1.53**	0.229	2.82	1	0.01	0.0153
OCDF	**14.7**	0.548	5.63	1	0.0003	0.00441
		Total TEQ				6.82

2005 WHO TEFs, ND = 0

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	Percent
Lab Code:	E1401160-001	**Basis:**	As Received

Total Solids Run Create

Analysis Method:	ALS SOP	**Date Analyzed:**	09/30/14 11:19
	7.985g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	87.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	ng/Kg
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 12:30
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.212g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174008	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.99	4.99			1
1,2,3,7,8-PeCDD	ND	U	13.4	13.4			1
1,2,3,4,7,8-HxCDD	ND	U	21.3	21.3			1
1,2,3,6,7,8-HxCDD	ND	U	20.5	20.5			1
1,2,3,7,8,9-HxCDD	52.1		19.4	19.4	1.09	1.006	1
1,2,3,4,6,7,8-HpCDD	41.0		4.11	4.11	1.08	1.000	1
OCDD	1370		4.87	6.10	0.92	1.000	1
2,3,7,8-TCDF	ND	U	38.5	38.5			1
1,2,3,7,8-PeCDF	ND	U	19.2	19.2			1
2,3,4,7,8-PeCDF	46.8**K**		38.9	38.9	0.99	1.001	1
1,2,3,4,7,8-HxCDF	26.6**K**		16.0	16.0	0.70	1.000	1
1,2,3,6,7,8-HxCDF	26.2**K**		18.6	18.6	1.47	1.000	1
1,2,3,7,8,9-HxCDF	9.70**K**		4.07	4.07	0.96	1.000	1
2,3,4,6,7,8-HxCDF	32.2		22.8	22.8	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	41.7		26.4	26.4	1.15	1.000	1
1,2,3,4,7,8,9-HpCDF	32.3**K**		11.6	11.6	1.29	1.000	1
OCDF	19.7**K**		4.80	6.10	1.20	1.005	1
Total Tetra-Dioxins	ND	U	4.99	4.99			1
Total Penta-Dioxins	ND	U	13.4	13.4			1
Total Hexa-Dioxins	52.1		20.4	20.4	1.09		1
Total Hepta-Dioxins	41.0		4.11	4.11	1.08		1
Total Tetra-Furans	ND	U	38.5	38.5			1
Total Penta-Furans	ND	U	30.4	30.4			1
Total Hexa-Furans	32.2		9.71	9.71	1.24		1
Total Hepta-Furans	41.7		16.0	16.0	1.15		1

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	Percent
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 12:30
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.212g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174008	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	30.541	2	**Y**	40-135	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	6.756	0	**Y**	40-135	1.39	1.176
13C-1,2,3,4,7,8-HxCDD	2000	4.155	0	**K**	40-135	1.03	0.991
13C-1,2,3,6,7,8-HxCDD	2000	4.135	0	**Y**	40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	15.673	1	**K**	40-135	1.22	1.065
13C-OCDD	4000	78.523	2	**Y**	40-135	0.86	1.141
13C-2,3,7,8-TCDF	2000	4.799	0	**Y**	40-135	0.67	0.993
13C-1,2,3,7,8-PeCDF	2000	5.017	0	**K**	40-135	1.90	1.136
13C-2,3,4,7,8-PeCDF	2000	2.058	0	**K**	40-135	1.26	1.167
13C-1,2,3,4,7,8-HxCDF	2000	4.835	0	**K**	40-135	0.39	0.972
13C-1,2,3,6,7,8-HxCDF	2000	4.326	0	**Y**	40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	22.191	1	**Y**	40-135	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	3.530	0	**K**	40-135	0.64	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	4.662	0	**Y**	40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	12.341	1	**Y**	40-135	0.42	1.079
37Cl-2,3,7,8-TCDD	800	10.915	1	**Y**	40-135	NA	1.020

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	ng/Kg
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.99	4.99	1	1	
1,2,3,7,8-PeCDD	ND	13.4	13.4	1	1	
1,2,3,4,7,8-HxCDD	ND	21.3	21.3	1	0.1	
1,2,3,6,7,8-HxCDD	ND	20.5	20.5	1	0.1	
1,2,3,7,8,9-HxCDD	**52.1**	19.4	19.4	1	0.1	5.21
1,2,3,4,6,7,8-HpCDD	**41.0**	4.11	4.11	1	0.01	0.410
OCDD	**1370**	4.87	6.10	1	0.0003	0.411
2,3,7,8-TCDF	ND	38.5	38.5	1	0.1	
1,2,3,7,8-PeCDF	ND	19.2	19.2	1	0.03	
2,3,4,7,8-PeCDF	**46.8**	38.9	38.9	1	0.3	14.0
1,2,3,4,7,8-HxCDF	**26.6**	16.0	16.0	1	0.1	2.66
1,2,3,6,7,8-HxCDF	**26.2**	18.6	18.6	1	0.1	2.62
1,2,3,7,8,9-HxCDF	**9.70**	4.07	4.07	1	0.1	0.970
2,3,4,6,7,8-HxCDF	**32.2**	22.8	22.8	1	0.1	3.22
1,2,3,4,6,7,8-HpCDF	**41.7**	26.4	26.4	1	0.01	0.417
1,2,3,4,7,8,9-HpCDF	**32.3**	11.6	11.6	1	0.01	0.323
OCDF	**19.7**	4.80	6.10	1	0.0003	0.00591
		Total TEQ				30.2

2005 WHO TEFs, ND = 0

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	Percent
Lab Code:	E1401160-002	**Basis:**	As Received

Total Solids Run Create

Analysis Method:	ALS SOP	**Date Analyzed:**	09/30/14 11:19
	6.289g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.3		-	1

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Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1400606-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/07/14 13:12
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.252g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231791	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231790

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.171	0.488			1
1,2,3,7,8-PeCDD	0.246**JK**		0.0997	2.44	2.95	1.001	1
1,2,3,4,7,8-HxCDD	0.231**JK**		0.0590	2.44	1.04	1.000	1
1,2,3,6,7,8-HxCDD	0.280**JK**		0.0676	2.44	0.81	1.000	1
1,2,3,7,8,9-HxCDD	0.330**JK**		0.0587	2.44	0.96	1.006	1
1,2,3,4,6,7,8-HpCDD	0.496**J**		0.0541	2.44	1.12	1.000	1
OCDD	1.84**J**		0.107	4.88	0.93	1.000	1
2,3,7,8-TCDF	0.569**K**		0.160	0.488	0.95	1.001	1
1,2,3,7,8-PeCDF	0.753**J**		0.0730	2.44	1.69	1.001	1
2,3,4,7,8-PeCDF	0.421**J**		0.0713	2.44	1.74	1.001	1
1,2,3,4,7,8-HxCDF	1.10**J**		0.0525	2.44	1.26	1.000	1
1,2,3,6,7,8-HxCDF	0.448**JK**		0.0459	2.44	1.00	1.000	1
1,2,3,7,8,9-HxCDF	0.491**JK**		0.0668	2.44	1.51	1.000	1
2,3,4,6,7,8-HxCDF	0.415**JK**		0.0550	2.44	0.92	1.000	1
1,2,3,4,6,7,8-HpCDF	0.862**J**		0.0372	2.44	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	0.646**JK**		0.0475	2.44	1.31	1.000	1
OCDF	1.81**JK**		0.287	4.88	0.74	1.005	1
Total Tetra-Dioxins	ND	U	0.171	0.488			1
Total Penta-Dioxins	ND	U	0.0997	2.44			1
Total Hexa-Dioxins	ND	U	0.0617	2.44			1
Total Hepta-Dioxins	0.496**J**		0.0541	2.44	1.12		1
Total Tetra-Furans	ND	U	0.160	0.488			1
Total Penta-Furans	1.17**J**		0.0839	2.44			1
Total Hexa-Furans	1.10**J**		0.0541	2.44	1.26		1
Total Hepta-Furans	0.862**J**		0.0418	2.44	1.13		1

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1400606-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/07/14 13:12
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.252g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231791	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231790

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1038.214	52		40-135	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	961.362	48		40-135	1.59	1.209
13C-1,2,3,4,7,8-HxCDD	2000	1267.454	63		40-135	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1196.471	60		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1282.190	64		40-135	1.06	1.069
13C-OCDD	4000	2443.530	61		40-135	0.91	1.141
13C-2,3,7,8-TCDF	2000	1004.102	50		40-135	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	907.831	45		40-135	1.59	1.162
13C-2,3,4,7,8-PeCDF	2000	921.916	46		40-135	1.60	1.198
13C-1,2,3,4,7,8-HxCDF	2000	1185.527	59		40-135	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1342.824	67		40-135	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1286.751	64		40-135	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1173.687	59		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1134.763	57		40-135	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1422.075	71		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	408.245	51		40-135	NA	1.025

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Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Solid Waste	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1400620-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/11/14 04:31
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.479g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174027	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174024

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0701	0.477			1
1,2,3,7,8-PeCDD	ND	U	0.0479	2.39			1
1,2,3,4,7,8-HxCDD	0.108**JK**		0.0325	2.39	0.73	1.001	1
1,2,3,6,7,8-HxCDD	ND	U	0.0328	2.39			1
1,2,3,7,8,9-HxCDD	0.115**JK**		0.0310	2.39	1.80	1.006	1
1,2,3,4,6,7,8-HpCDD	0.255**J**		0.0306	2.39	1.20	1.001	1
OCDD	0.668**JK**		0.126	4.77	0.73	1.000	1
2,3,7,8-TCDF	ND	U	0.0836	0.477			1
1,2,3,7,8-PeCDF	ND	U	0.0561	2.39			1
2,3,4,7,8-PeCDF	0.124**JK**		0.0583	2.39	0.84	1.000	1
1,2,3,4,7,8-HxCDF	0.0650**JK**		0.0147	2.39	1.75	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0153	2.39			1
1,2,3,7,8,9-HxCDF	0.114**J**		0.0178	2.39	1.09	1.000	1
2,3,4,6,7,8-HxCDF	0.102**J**		0.0158	2.39	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0490	2.39			1
1,2,3,4,7,8,9-HpCDF	0.212**JK**		0.0597	2.39	0.83	1.000	1
OCDF	0.447**JK**		0.0892	4.77	1.14	1.006	1
Total Tetra-Dioxins	ND	U	0.0701	0.477			1
Total Penta-Dioxins	ND	U	0.0479	2.39			1
Total Hexa-Dioxins	ND	U	0.0320	2.39			1
Total Hepta-Dioxins	0.255**J**		0.0306	2.39	1.20		1
Total Tetra-Furans	ND	U	-	0.477			1
Total Penta-Furans	ND	U	0.0522	2.39			1
Total Hexa-Furans	0.217**J**		0.0158	2.39	1.28		1
Total Hepta-Furans	ND	U	0.0540	2.39			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Solid Waste	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1400620-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/11/14 04:31
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.479g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174027	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174024

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1602.405	80		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1727.833	86		40-135	1.60	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1498.272	75		40-135	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1561.444	78		40-135	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1586.807	79		40-135	1.05	1.065
13C-OCDD	4000	2725.963	68		40-135	0.89	1.141
13C-2,3,7,8-TCDF	2000	1563.245	78		40-135	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1672.207	84		40-135	1.57	1.136
13C-2,3,4,7,8-PeCDF	2000	1641.449	82		40-135	1.59	1.167
13C-1,2,3,4,7,8-HxCDF	2000	1642.055	82		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1528.166	76		40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1679.369	84		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1509.711	75		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1407.382	70		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1617.618	81		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	635.180	79		40-135	NA	1.020

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Analyzed:**	10/04/14
Sample Matrix:	Soil	**Date Extracted:**	09/27/14

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	415030

Lab Control Sample
EQ1400606-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	107	98.6	108	70-130
1,2,3,4,7,8-HxCDD	95.6	98.6	97	70-130
1,2,3,6,7,8-HxCDD	108	98.6	109	70-130
1,2,3,7,8,9-HxCDD	101	98.6	102	70-130
1,2,3,7,8-PeCDD	102	98.6	103	70-130
2,3,7,8-TCDD	20.6	19.7	104	70-130
OCDD	213	197	108	70-130
1,2,3,4,6,7,8-HpCDF	118	98.6	120	70-130
1,2,3,4,7,8,9-HpCDF	113	98.6	114	70-130
1,2,3,4,7,8-HxCDF	112	98.6	113	70-130
1,2,3,6,7,8-HxCDF	98.2	98.6	100	70-130
1,2,3,7,8,9-HxCDF	121	98.6	122	70-130
1,2,3,7,8-PeCDF	117	98.6	119	70-130
2,3,4,6,7,8-HxCDF	112	98.6	114	70-130
2,3,4,7,8-PeCDF	114	98.6	115	70-130
2,3,7,8-TCDF	20.5	19.7	104	70-130
OCDF	223	197	113	70-130

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1400606-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 06:16
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P173841	**Blank File Name:**	P231791
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P173831

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.6		0.124	0.493	0.82	1.001	1
1,2,3,7,8-PeCDD	102		0.117	2.46	1.52	1.000	1
1,2,3,4,7,8-HxCDD	95.6		0.0720	2.46	1.22	1.000	1
1,2,3,6,7,8-HxCDD	108		0.0852	2.46	1.24	1.000	1
1,2,3,7,8,9-HxCDD	101		0.0727	2.46	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	107		0.0858	2.46	1.03	1.000	1
OCDD	213		0.0993	4.93	0.88	1.000	1
2,3,7,8-TCDF	20.5		0.113	0.493	0.75	1.001	1
1,2,3,7,8-PeCDF	117		0.117	2.46	1.62	1.001	1
2,3,4,7,8-PeCDF	114		0.113	2.46	1.62	1.000	1
1,2,3,4,7,8-HxCDF	112		0.0441	2.46	1.24	1.000	1
1,2,3,6,7,8-HxCDF	98.2		0.0366	2.46	1.25	1.000	1
1,2,3,7,8,9-HxCDF	121		0.0555	2.46	1.29	1.000	1
2,3,4,6,7,8-HxCDF	112		0.0434	2.46	1.27	1.000	1
1,2,3,4,6,7,8-HpCDF	118		0.351	2.46	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	113		0.346	2.46	1.04	1.000	1
OCDF	223		0.210	4.93	0.90	1.005	1
Total Tetra-Dioxins	20.7		0.124	0.493	0.82		1
Total Penta-Dioxins	102		0.117	2.46	1.52		1
Total Hexa-Dioxins	304		0.0765	2.46	1.22		1
Total Hepta-Dioxins	108		0.0858	2.46	0.95		1
Total Tetra-Furans	20.8		0.113	0.493	0.80		1
Total Penta-Furans	231		0.0684	2.46			1
Total Hexa-Furans	443		0.0441	2.46	1.24		1
Total Hepta-Furans	231		0.347	2.46	1.07		1

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1400606-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 06:16
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P173841	**Blank File Name:**	P231791
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P173831

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1168.863	58		40-135	0.78	1.018
13C-1,2,3,7,8-PeCDD	2000	1084.077	54		40-135	1.61	1.170
13C-1,2,3,4,7,8-HxCDD	2000	1454.427	73		40-135	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1238.335	62		40-135	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1143.997	57		40-135	1.03	1.065
13C-OCDD	4000	1780.500	45		40-135	0.89	1.142
13C-2,3,7,8-TCDF	2000	1107.195	55		40-135	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	908.868	45		40-135	1.56	1.131
13C-2,3,4,7,8-PeCDF	2000	986.942	49		40-135	1.58	1.161
13C-1,2,3,4,7,8-HxCDF	2000	1296.674	65		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1425.651	71		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1185.566	59		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1283.237	64		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	891.706	45		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1149.876	57		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	444.277	56		40-135	NA	1.019

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Analyzed:**	10/10/14
Sample Matrix:	Solid Waste	**Date Extracted:**	10/04/14

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	415877

Lab Control Sample
EQ1400620-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	96.0	96.0	100	70-130
1,2,3,4,7,8-HxCDD	95.1	96.0	99	70-130
1,2,3,6,7,8-HxCDD	98.3	96.0	102	70-130
1,2,3,7,8,9-HxCDD	93.9	96.0	98	70-130
1,2,3,7,8-PeCDD	96.1	96.0	100	70-130
2,3,7,8-TCDD	18.7	19.2	97	70-130
OCDD	186	192	97	70-130
1,2,3,4,6,7,8-HpCDF	101	96.0	105	70-130
1,2,3,4,7,8,9-HpCDF	103	96.0	107	70-130
1,2,3,4,7,8-HxCDF	93.8	96.0	98	70-130
1,2,3,6,7,8-HxCDF	99.3	96.0	103	70-130
1,2,3,7,8,9-HxCDF	102	96.0	106	70-130
1,2,3,7,8-PeCDF	99.6	96.0	104	70-130
2,3,4,6,7,8-HxCDF	105	96.0	109	70-130
2,3,4,7,8-PeCDF	102	96.0	107	70-130
2,3,7,8-TCDF	19.0	19.2	99	70-130
OCDF	211	192	110	70-130

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Solid Waste	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1400620-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 13:19
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.415g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174009	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.7		0.104	0.480	0.77	1.001	1
1,2,3,7,8-PeCDD	96.1		0.0881	2.40	1.59	1.000	1
1,2,3,4,7,8-HxCDD	95.1		0.0573	2.40	1.26	1.000	1
1,2,3,6,7,8-HxCDD	98.3		0.0624	2.40	1.25	1.000	1
1,2,3,7,8,9-HxCDD	93.9		0.0555	2.40	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	96.0		0.0559	2.40	1.07	1.000	1
OCDD	186		0.0839	4.80	0.90	1.000	1
2,3,7,8-TCDF	19.0		0.161	0.480	0.76	1.001	1
1,2,3,7,8-PeCDF	99.6		0.0693	2.40	1.64	1.001	1
2,3,4,7,8-PeCDF	102		0.0690	2.40	1.59	1.000	1
1,2,3,4,7,8-HxCDF	93.8		0.0321	2.40	1.26	1.000	1
1,2,3,6,7,8-HxCDF	99.3		0.0319	2.40	1.29	1.000	1
1,2,3,7,8,9-HxCDF	102		0.0392	2.40	1.31	1.000	1
2,3,4,6,7,8-HxCDF	105		0.0345	2.40	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	101		0.184	2.40	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	103		0.152	2.40	1.05	1.000	1
OCDF	211		0.161	4.80	0.90	1.005	1
Total Tetra-Dioxins	18.7		0.104	0.480	0.77		1
Total Penta-Dioxins	96.4		0.0881	2.40	1.33		1
Total Hexa-Dioxins	288		0.0583	2.40	1.15		1
Total Hepta-Dioxins	99.0		0.0559	2.40	1.18		1
Total Tetra-Furans	19.0		0.161	0.480	0.76		1
Total Penta-Furans	202		0.0581	2.40			1
Total Hexa-Furans	400		0.0343	2.40	1.26		1
Total Hepta-Furans	206		0.165	2.40	1.03		1

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	NA
Sample Matrix:	Solid Waste	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1400620-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 13:19
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.415g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174009	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1439.707	72		40-135	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1280.570	64		40-135	1.56	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1622.335	81		40-135	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1451.290	73		40-135	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1355.169	68		40-135	1.09	1.066
13C-OCDD	4000	1805.751	45		40-135	0.91	1.141
13C-2,3,7,8-TCDF	2000	1400.535	70		40-135	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1211.041	61		40-135	1.57	1.136
13C-2,3,4,7,8-PeCDF	2000	1218.835	61		40-135	1.58	1.167
13C-1,2,3,4,7,8-HxCDF	2000	1727.783	86		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1581.608	79		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1566.529	78		40-135	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1556.926	78		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	912.242	46		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1369.048	68		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	528.202	66		40-135	NA	1.020

Chromatograms and Selected Ion Monitoring

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Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
SBA-ESI-14

Run #10 Filename P231754 Samp: 1 Inj: 1 Acquired: 4-OCT-14 01:50:26
Processed: 7-OCT-14 08:36:26 Sample ID: E1401160-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:03	2.155e+02	2.843e+02	0.76	yes	yes	0.986
2	Unk	1,2,3,7,8-PeCDF	31:32	2.975e+02	2.000e+02	1.49	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:30	4.180e+02	2.767e+02	1.51	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:15	2.612e+02	1.849e+02	1.41	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:22	2.195e+02	1.898e+02	1.16	yes	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:55	4.091e+02	2.891e+02	1.42	yes	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:40	6.360e+01	4.702e+01	1.35	yes	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:56	1.141e+03	9.892e+02	1.15	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:15	7.781e+01	5.293e+01	1.47	no	no	1.274
10	Unk	OCDF	41:39	3.822e+02	4.388e+02	0.87	yes	no	1.195
~~11~~	~~Unk~~	~~2,3,7,8-TCDD~~	~~27:54~~	~~5.109e+01~~	~~6.040e+01~~	~~0.85~~	~~yes~~	~~yes~~	~~1.061~~
12	Unk	1,2,3,7,8-PeCDD	32:46	1.345e+02	7.013e+01	1.92	no	no	0.992
13	Unk	1,2,3,4,7,8-HxCDD	36:03	6.860e+01	7.095e+01	0.97	no	no	1.118
14	Unk	1,2,3,6,7,8-HxCDD	36:08	1.891e+02	1.348e+02	1.40	yes	no	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:24	2.083e+02	1.688e+02	1.23	yes	no	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:48	1.559e+03	1.632e+03	0.96	yes	no	1.053
17	Unk	OCDD	41:27	1.079e+04	1.208e+04	0.89	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	27:01	1.814e+04	2.227e+04	0.81	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:30	2.421e+04	1.547e+04	1.56	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:30	2.452e+04	1.548e+04	1.58	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:14	9.514e+03	1.818e+04	0.52	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:21	1.103e+04	2.106e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:54	9.477e+03	1.866e+04	0.51	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:39	7.079e+03	1.364e+04	0.52	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:55	4.382e+03	9.873e+03	0.44	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:15	4.445e+03	1.065e+04	0.42	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:52	1.234e+04	1.606e+04	0.77	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:46	1.712e+04	1.095e+04	1.56	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	36:02	1.281e+04	1.024e+04	1.25	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	36:08	1.069e+04	8.466e+03	1.26	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:47	9.459e+03	8.706e+03	1.09	yes	no	0.850
32	IS	13C-OCDD	41:27	1.003e+04	1.109e+04	0.90	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	27:10	2.569e+04	3.282e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:23	2.837e+04	2.241e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:54	1.224e+04				no	1.099

$$\text{OCDD} = \frac{(1.079e+04 + 1.208e+04) \times 4000 \text{ pg} \times 1}{(1.003e+04 + 1.109e+04) \times 10.64 \times 87.3 \times 1.169} = 418 \text{ ND}$$

10/08/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
SBA-ESI-14

Run #10 Filename P231754 Samp: 1 Inj: 1 Acquired: 4-OCT-14 01:50:26
Processed: 7-OCT-14 08:36:261 LAB. ID: E1401160-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.05e+04	3.08e+02	1.3e+02	5.35e+04	1.56e+03	3.4e+01
2	1,2,3,7,8-PeCDF	5.64e+04	4.64e+02	1.2e+02	3.45e+04	8.48e+02	4.1e+01
3	2,3,4,7,8-PeCDF	8.09e+04	4.64e+02	1.7e+02	5.39e+04	8.48e+02	6.4e+01
4	1,2,3,4,7,8-HxCDF	5.34e+04	8.52e+02	6.3e+01	3.35e+04	7.80e+02	4.3e+01
5	1,2,3,6,7,8-HxCDF	4.96e+04	8.52e+02	5.8e+01	4.83e+04	7.80e+02	6.2e+01
6	2,3,4,6,7,8-HxCDF	8.02e+04	8.52e+02	9.4e+01	5.54e+04	7.80e+02	7.1e+01
7	1,2,3,7,8,9-HxCDF	1.27e+04	8.52e+02	1.5e+01	1.27e+04	7.80e+02	1.6e+01
8	1,2,3,4,6,7,8-HpCDF	2.74e+05	9.52e+02	2.9e+02	2.24e+05	7.76e+02	2.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.40e+04	9.52e+02	1.5e+01	1.28e+04	7.76e+02	1.7e+01
10	OCDF	6.68e+04	7.20e+02	9.3e+01	7.97e+04	1.54e+03	5.2e+01
11	2,3,7,8-TCDD	8.59e+03	9.84e+02	8.7e+00	8.40e+03	8.16e+02	1.0e+01
12	1,2,3,7,8-PeCDD	2.26e+04	1.12e+03	2.0e+01	1.30e+04	3.28e+02	4.0e+01
13	1,2,3,4,7,8-HxCDD	1.52e+04	4.04e+02	3.8e+01	1.68e+04	6.80e+02	2.5e+01
14	1,2,3,6,7,8-HxCDD	4.03e+04	4.04e+02	1.0e+02	3.09e+04	6.80e+02	4.5e+01
15	1,2,3,7,8,9-HxCDD	4.86e+04	4.04e+02	1.2e+02	3.28e+04	6.80e+02	4.8e+01
16	1,2,3,4,6,7,8-HpCDD	3.44e+05	8.92e+02	3.9e+02	3.69e+05	4.88e+02	7.6e+02
17	OCDD	1.99e+06	1.24e+03	1.6e+03	2.22e+06	1.92e+03	1.2e+03
18	13C-2,3,7,8-TCDF	2.31e+06	1.90e+03	1.2e+03	2.84e+06	1.51e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	4.11e+06	4.68e+02	8.8e+03	2.65e+06	5.52e+02	4.8e+03
20	13C-2,3,4,7,8-PeCDF	5.60e+06	4.68e+02	1.2e+04	3.51e+06	5.52e+02	6.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.90e+06	5.84e+02	3.3e+03	3.63e+06	1.29e+03	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.56e+06	5.84e+02	4.4e+03	4.97e+06	1.29e+03	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.96e+06	5.84e+02	3.4e+03	3.85e+06	1.29e+03	3.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+06	5.84e+02	3.3e+03	3.72e+06	1.29e+03	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.04e+06	1.38e+03	7.6e+02	2.37e+06	1.22e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.75e+05	1.38e+03	7.1e+02	2.37e+06	1.22e+03	1.9e+03
27	13C-2,3,7,8-TCDD	1.69e+06	5.25e+03	3.2e+02	2.27e+06	3.06e+03	7.4e+02
28	13C-1,2,3,7,8-PeCDD	3.11e+06	7.92e+02	3.9e+03	1.99e+06	6.88e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.59e+06	9.12e+02	2.8e+03	2.08e+06	4.36e+02	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.30e+06	9.12e+02	2.5e+03	1.80e+06	4.36e+02	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.10e+06	1.24e+03	1.7e+03	1.97e+06	3.40e+02	5.8e+03
32	13C-OCDD	1.82e+06	1.93e+03	9.4e+02	2.06e+06	1.41e+03	1.5e+03
33	13C-1,2,3,4-TCDD	3.48e+06	5.25e+03	6.6e+02	4.48e+06	3.06e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.00e+06	9.12e+02	6.6e+03	4.78e+06	4.36e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.73e+06	6.16e+02	2.8e+03			

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Peak List Summary

CLIENT ID.
SBA-ESI-14

LabID: E1401160-001
Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 1
Llim: 22:05 Ulim: 28:59
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 303.9020 305.8990 Tot Response: 5.03e+03 RRF: 0.9861

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:43	3.98e+02	5.24e+02	0.76	yes	9.22e+02		n	n
2	24:05	2.42e+02	2.84e+02	0.85	yes	5.26e+02		n	y
3	24:29	9.69e+01	1.33e+02	0.73	yes	2.29e+02		n	n
4	24:37	1.67e+02	2.13e+02	0.79	yes	3.79e+02		n	n
5	25:17	2.49e+02	3.34e+02	0.74	yes	5.83e+02		y	y
6	26:02	1.67e+02	2.38e+02	0.70	yes	4.05e+02		y	y
7	27:03	2.16e+02	2.84e+02	0.76	yes	5.00e+02	2,3,7,8-TCDF	y	n
~~8~~	~~27:23~~	~~6.33e+02~~	~~8.48e+02~~	~~0.75~~	~~yes~~	~~1.48e+03~~		~~n~~	~~n~~

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 1
Llim: 23:46 Ulim: 28:48
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 319.8970 321.8940 Tot Response: 1.03e+03 RRF: 1.061

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:02	5.47e+01	6.76e+01	0.81	yes	1.22e+02		n	y
2	24:26	1.03e+02	1.21e+02	0.85	yes	2.24e+02		n	y
3	25:54	4.74e+01	6.14e+01	0.77	yes	1.09e+02		y	y
4	26:50	7.27e+01	8.44e+01	0.86	yes	1.57e+02		y	y
5	27:39	4.49e+01	6.51e+01	0.69	yes	1.10e+02		y	y
6	27:54	5.11e+01	6.04e+01	0.85	yes	1.11e+02	2,3,7,8-TCDD	y	n
7	28:12	8.16e+01	1.18e+02	0.69	yes	2.00e+02		y	y

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 38 Totals Name: Total Penta-Furan1

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 1
Llim: 28:39 Ulim: 33:27
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 339.8600 341.8570 Tot Response: 1.41e+03 RRF: 0.9848

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:06	8.65e+02	5.47e+02	1.58	yes	1.41e+03		n	n

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 39 Totals Name: Total Penta-Furan2

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 2
Llim: 28:39 Ulim: 33:27
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 339.8600 341.8570 Tot Response: 7.01e+03 RRF: 0.9848

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:47	8.32e+02	5.31e+02	1.57	yes	1.36e+03		n	n
2	30:57	8.36e+02	5.38e+02	1.55	yes	1.37e+03		n	n
3	31:12	6.45e+02	4.01e+02	1.61	yes	1.05e+03		n	n
4	31:20	1.65e+02	1.04e+02	1.59	yes	2.70e+02		n	n
5	31:32	2.97e+02	2.00e+02	1.49	yes	4.98e+02	1,2,3,7,8-PeCDF	n	n
6	31:46	4.78e+02	3.09e+02	1.55	yes	7.87e+02		n	n
7	32:24	6.06e+02	3.75e+02	1.62	yes	9.80e+02		n	n
8	32:30	4.18e+02	2.77e+02	1.51	yes	6.95e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 2
Llim: 30:19 Ulim: 33:11
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 355.8550 357.8520 Tot Response: 2.65e+03 RRF: 0.9921

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:57	5.23e+02	3.04e+02	1.72	yes	8.27e+02		n	n
2	31:32	3.14e+02	2.01e+02	1.56	yes	5.15e+02		n	n
3	31:42	1.22e+02	8.37e+01	1.46	yes	2.06e+02		n	n
4	31:49	2.37e+02	1.41e+02	1.68	yes	3.78e+02		n	n
5	32:02	3.36e+02	2.25e+02	1.50	yes	5.61e+02		n	n
6	32:21	9.38e+01	6.88e+01	1.36	yes	1.63e+02		n	n

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 3
Llim: 33:53 Ulim: 36:44
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 373.8210 375.8180 Tot Response: 5.49e+03 RRF: 1.140

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:07	3.45e+02	2.64e+02	1.31	yes	6.09e+02		n	n
2	34:17	1.13e+03	8.37e+02	1.35	yes	1.96e+03		n	n
3	34:48	3.19e+02	2.37e+02	1.35	yes	5.55e+02		n	n
4	35:09	3.80e+02	3.14e+02	1.21	yes	6.94e+02		n	n
5	35:15	2.61e+02	1.85e+02	1.41	yes	4.46e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:22	2.20e+02	1.90e+02	1.16	yes	4.09e+02	1,2,3,6,7,8-HxCDF	n	n
7	35:55	4.09e+02	2.89e+02	1.42	yes	6.98e+02	2,3,4,6,7,8-HxCDF	n	n
8	36:40	6.36e+01	4.70e+01	1.35	yes	1.11e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 3
Llim: 34:25 Ulim: 36:19
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 389.8160 391.8130 Tot Response: 4.70e+03 RRF: 1.129

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	9.22e+02	7.42e+02	1.24	yes	1.66e+03		n	n
2	35:10	5.46e+02	4.60e+02	1.19	yes	1.01e+03		n	n
3	35:25	8.52e+02	6.90e+02	1.24	yes	1.54e+03		n	n
4	36:08	1.89e+02	1.35e+02	1.40	yes	3.24e+02	1,2,3,6,7,8-HxCDD	n	n
5	36:18	8.71e+01	7.25e+01	1.20	yes	1.60e+02		n	n

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 4
Llim: 37:44 Ulim: 39:21
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 407.7820 409.7790 Tot Response: 3.40e+03 RRF: 1.317

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:56	1.14e+03	9.89e+02	1.15	yes	2.13e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:17	6.31e+02	6.35e+02	0.99	yes	1.27e+03		n	n

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Peak List Summary

CLIENT ID.

SBA-ESI-14

LabID: E1401160-001
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P231754 Sample: 1 Injection: 1 Function: 4
Llim: 37:59 Ulim: 38:53
Acquired: 4-OCT-14 01:50:26 Processed: 7-OCT-14 08:36:26
Mass: 423.7770 425.7740 Tot Response: 7.67e+03 RRF: 1.053

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:08	2.27e+03	2.21e+03	1.03	yes	4.48e+03		n	n
2	38:48	1.56e+03	1.63e+03	0.96	yes	3.19e+03	1,2,3,4,6,7,8-HpCDD	n	n

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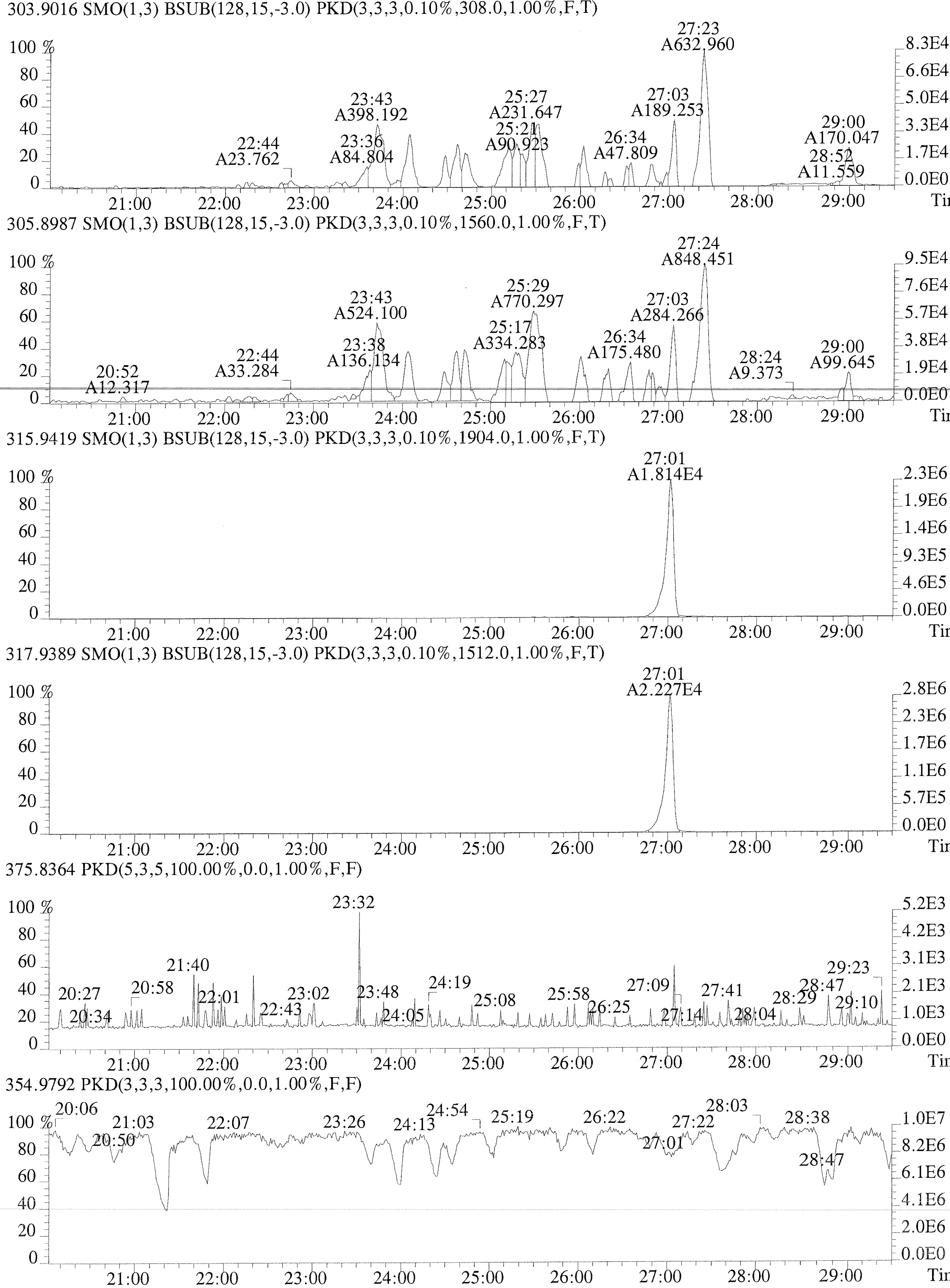
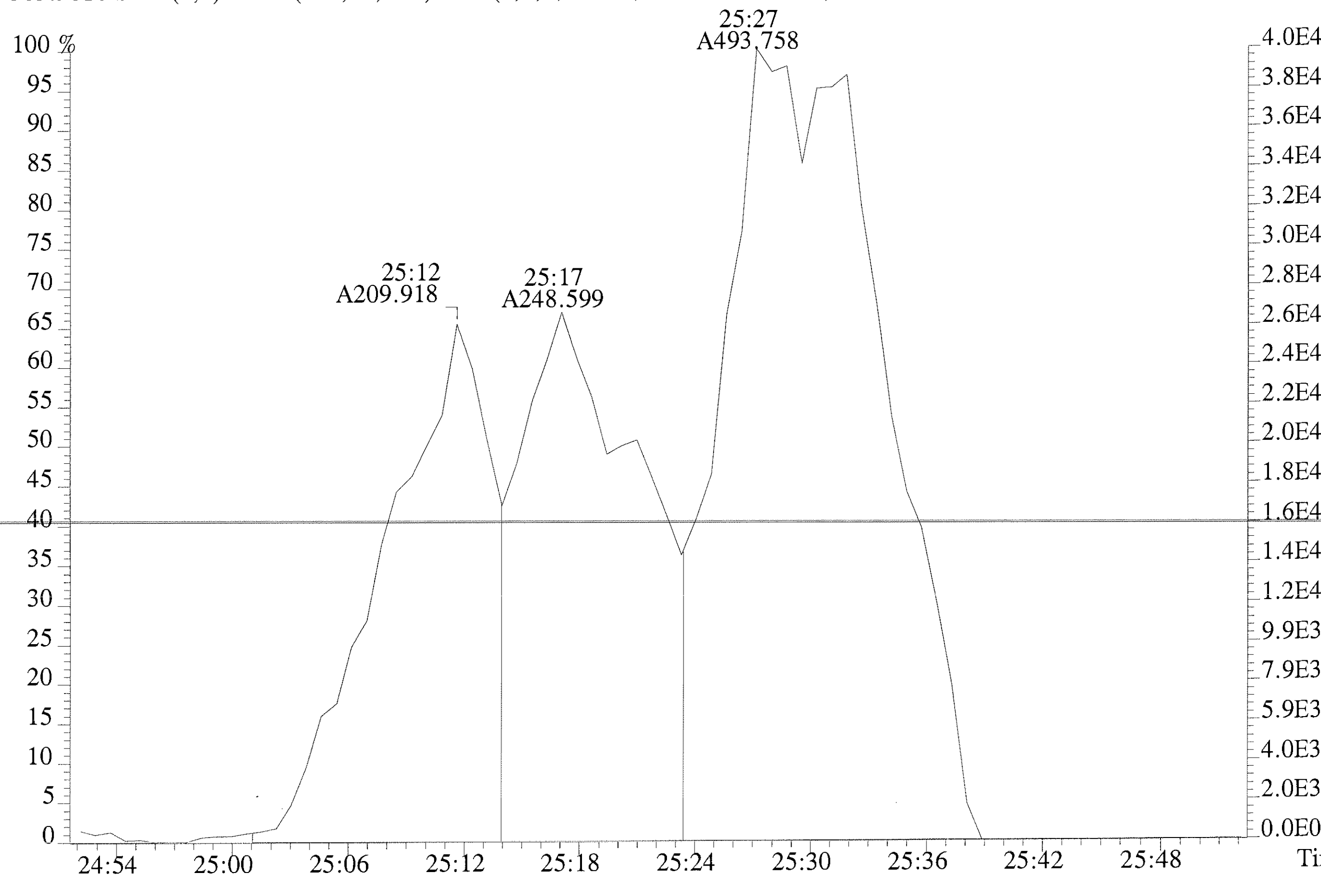
File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001

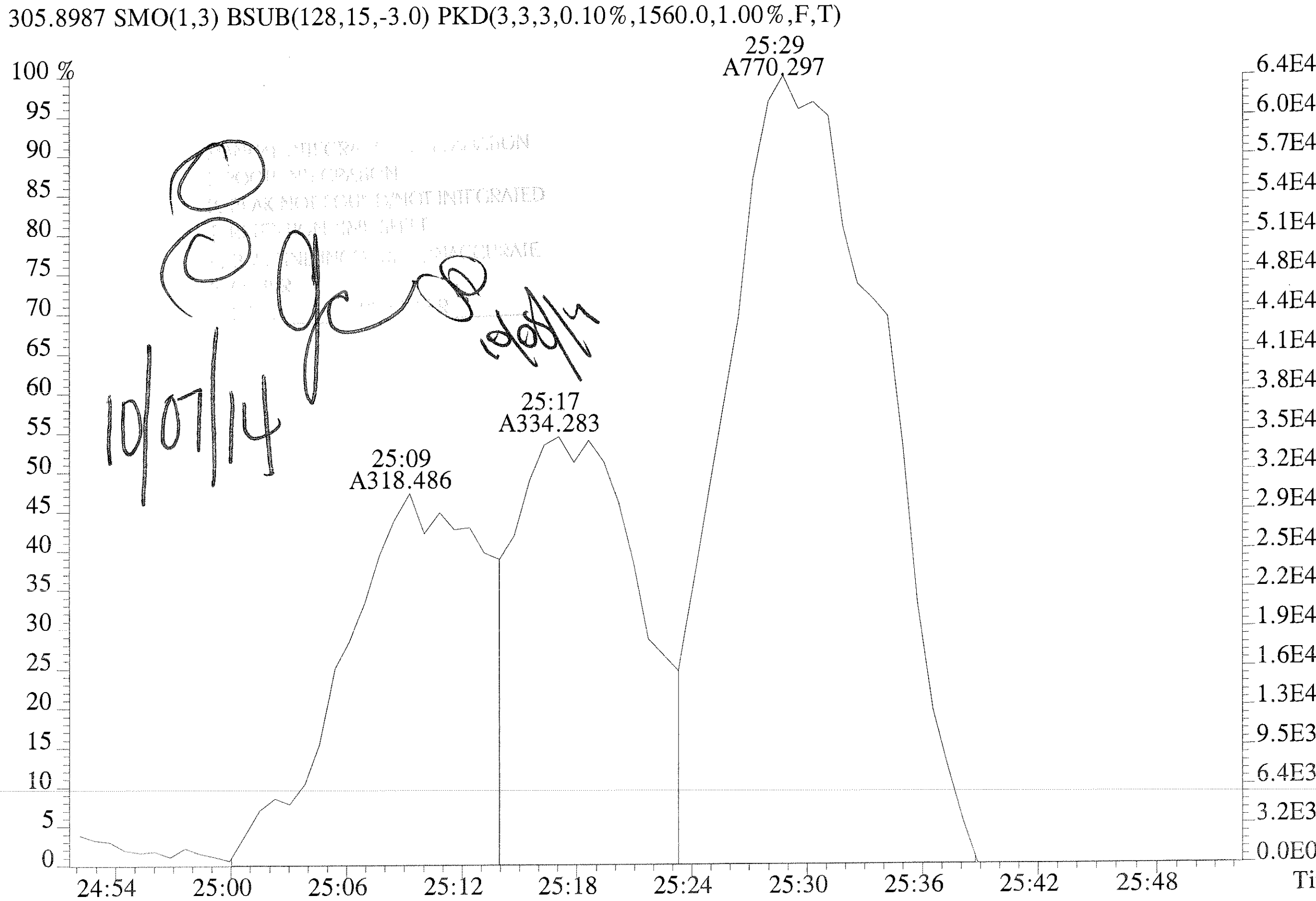


E1401160

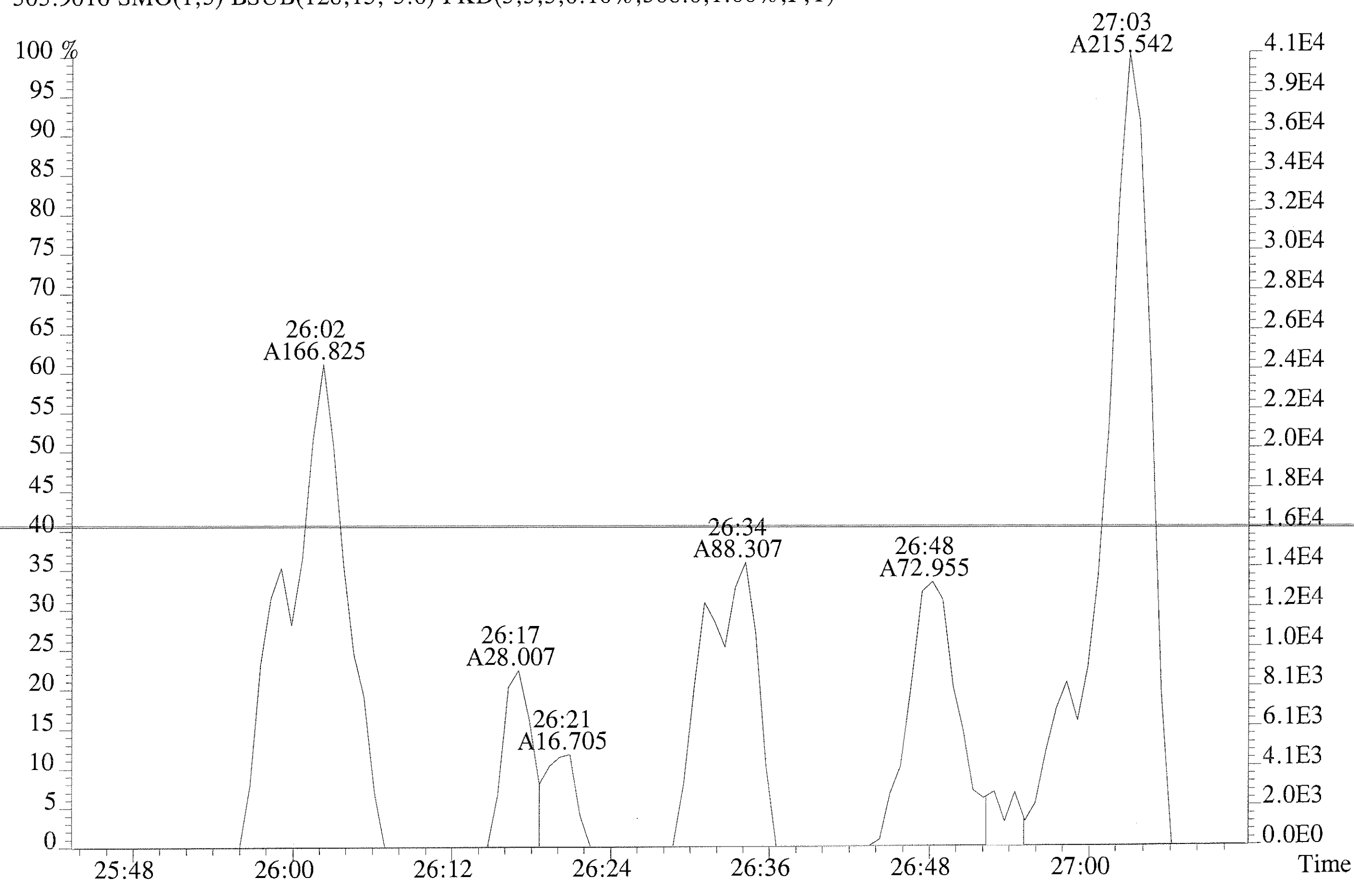
File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



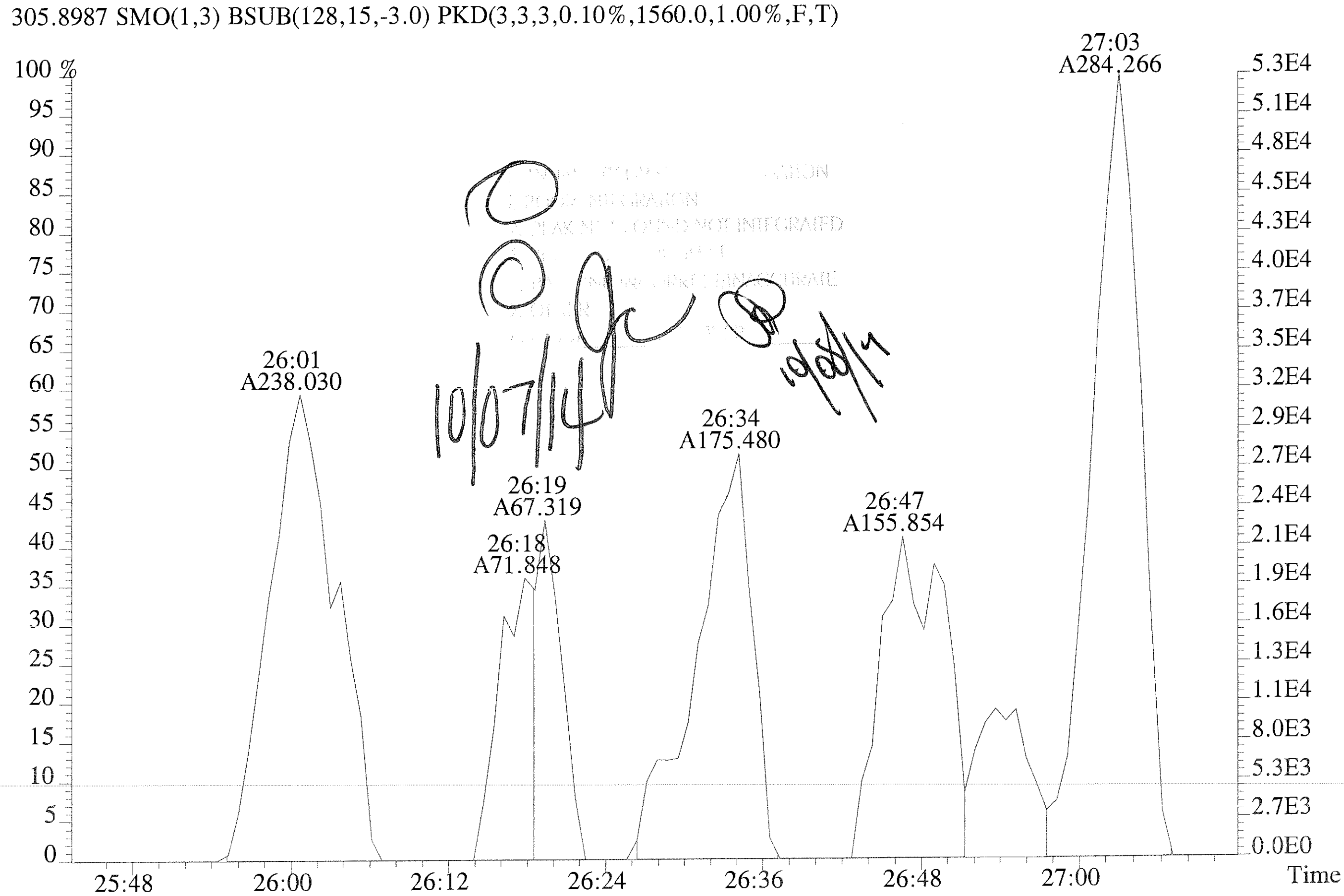
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



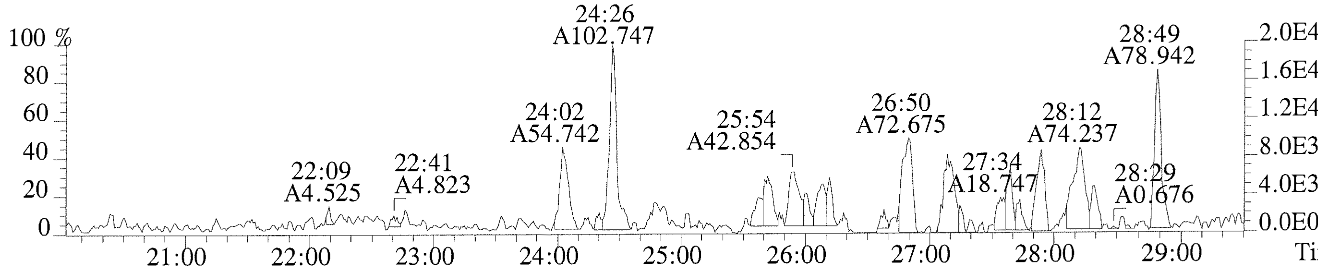
File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



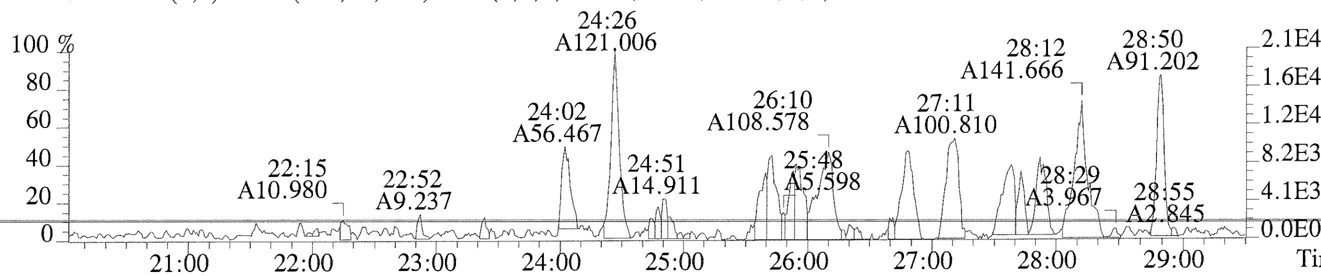
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



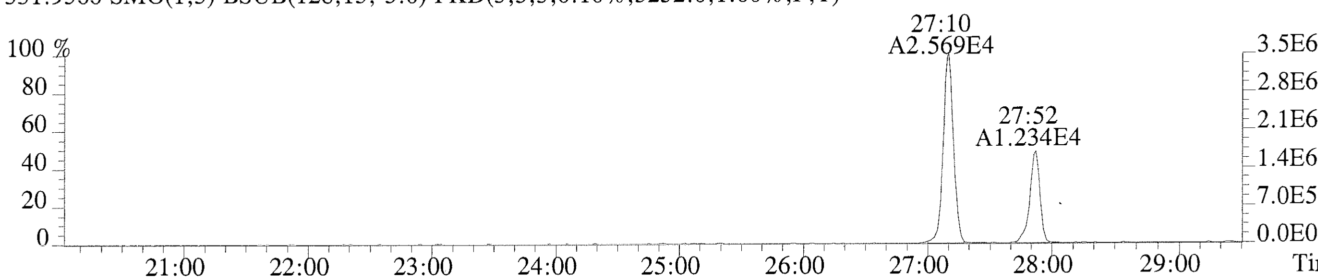
File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



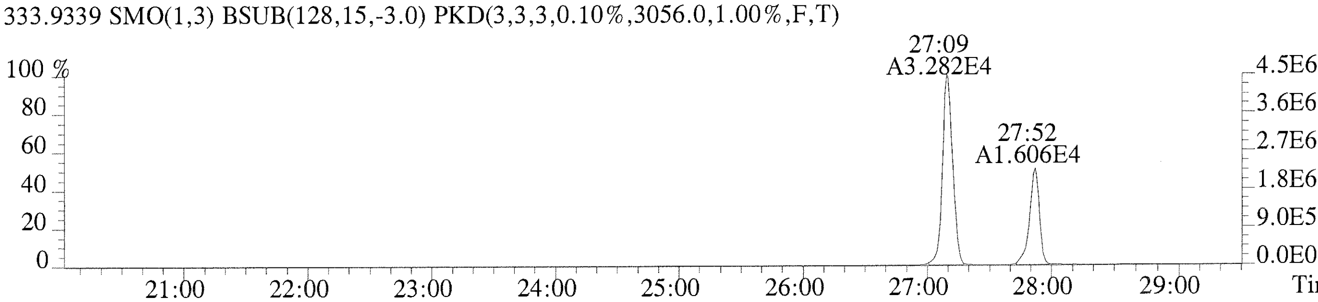
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



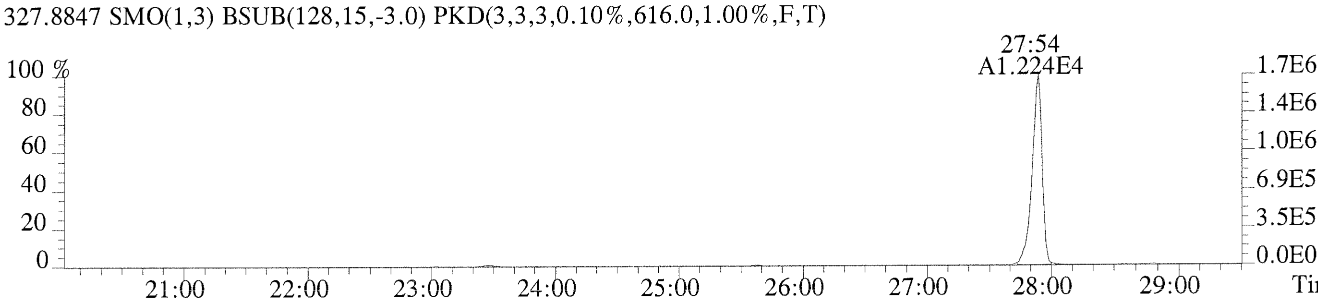
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5252.0,1.00%,F,T)



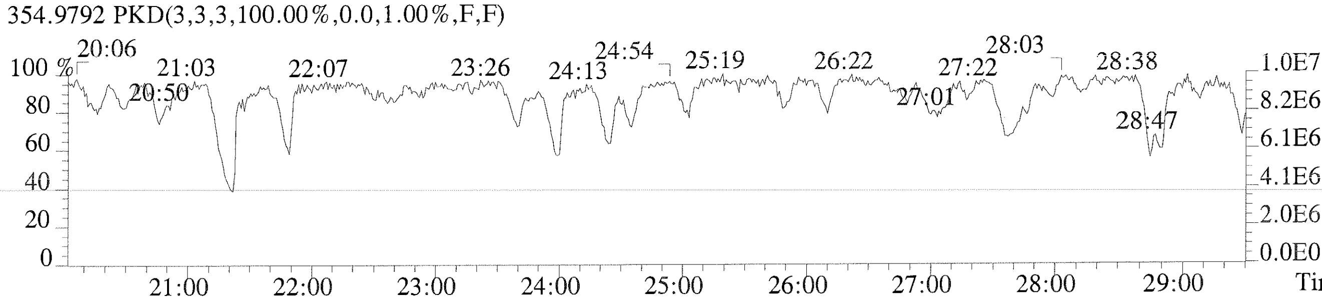
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3056.0,1.00%,F,T)



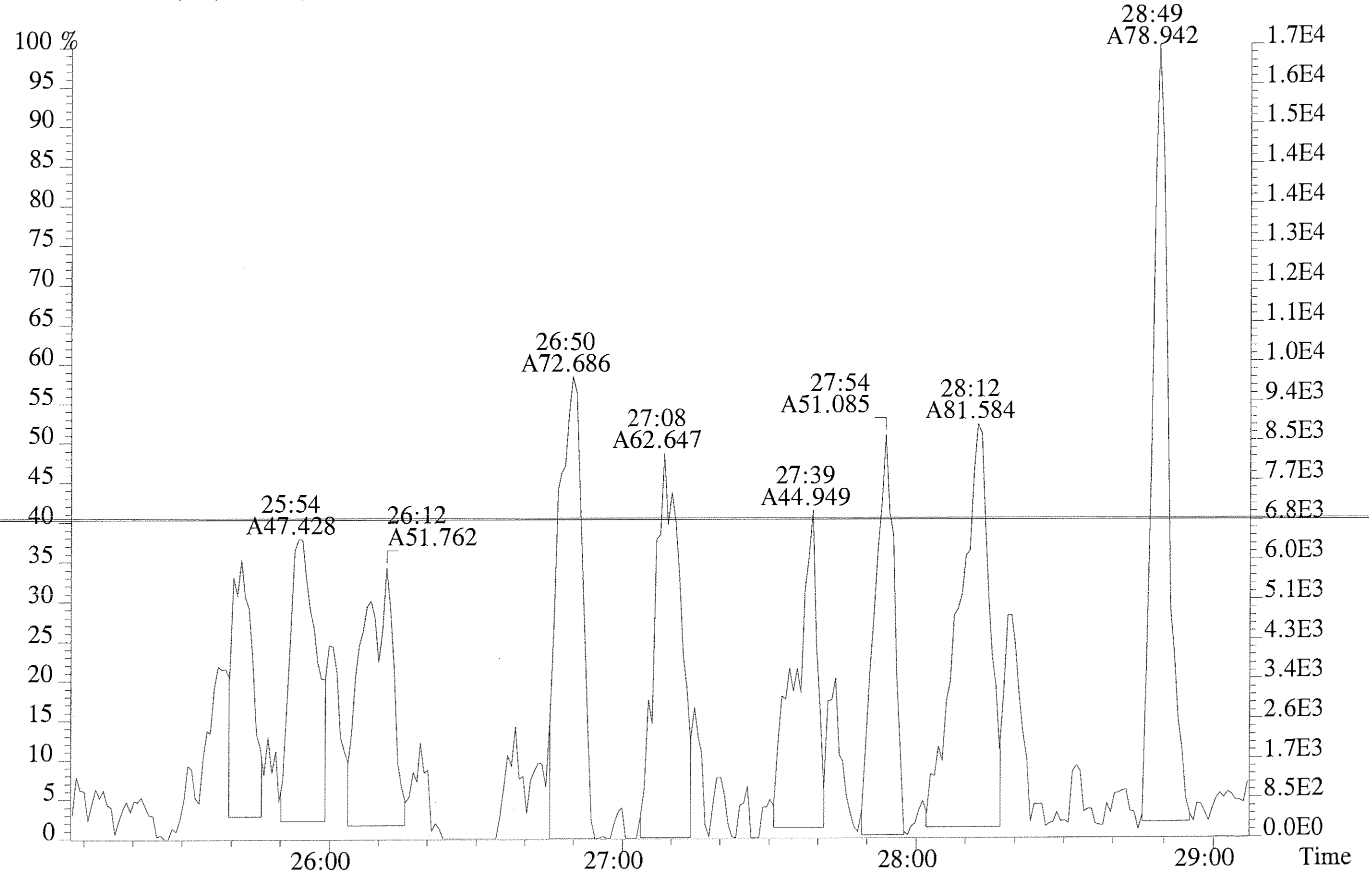
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



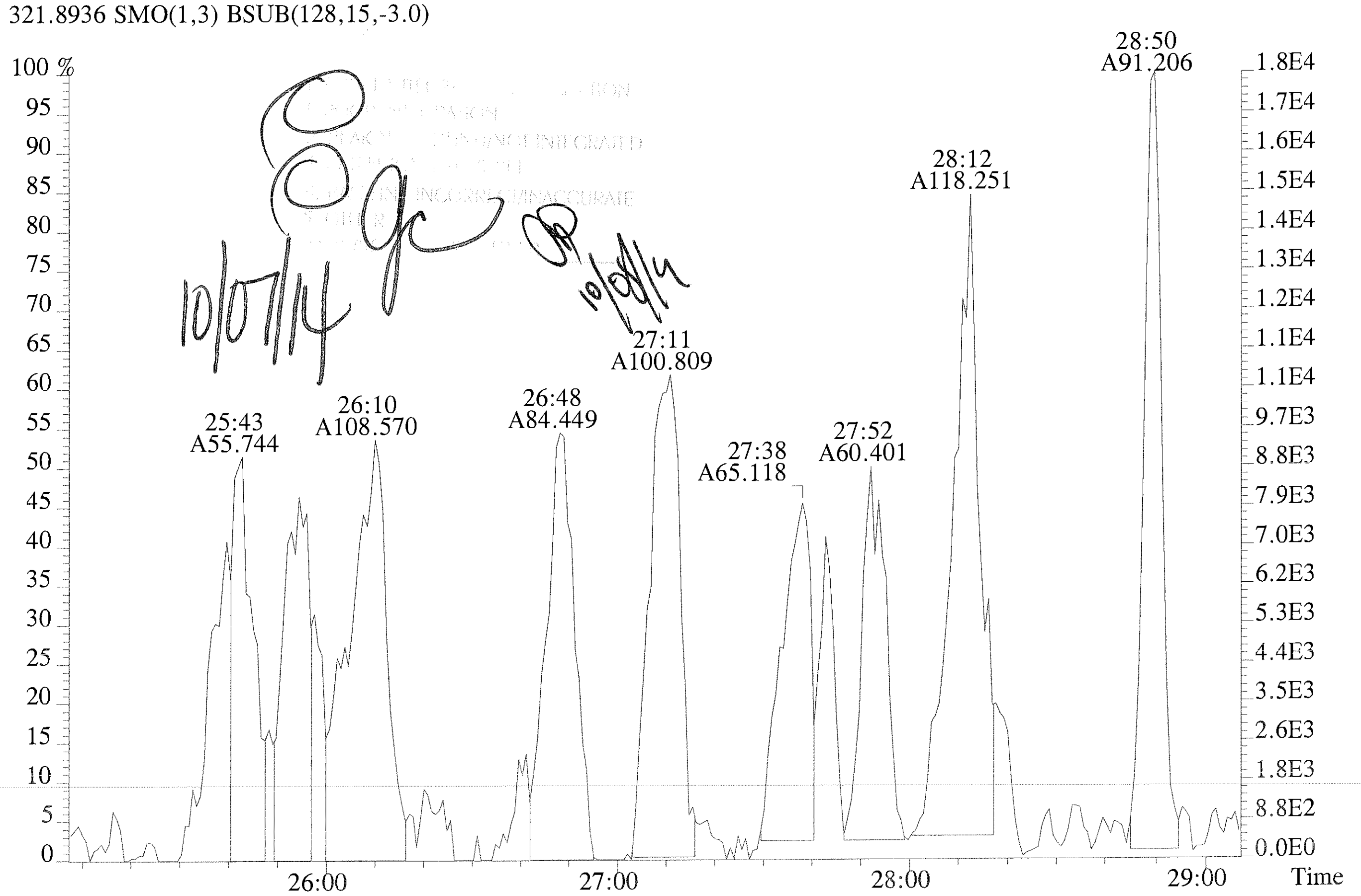
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
319.8965 SMO(1,3) BSUB(128,15,-3.0)



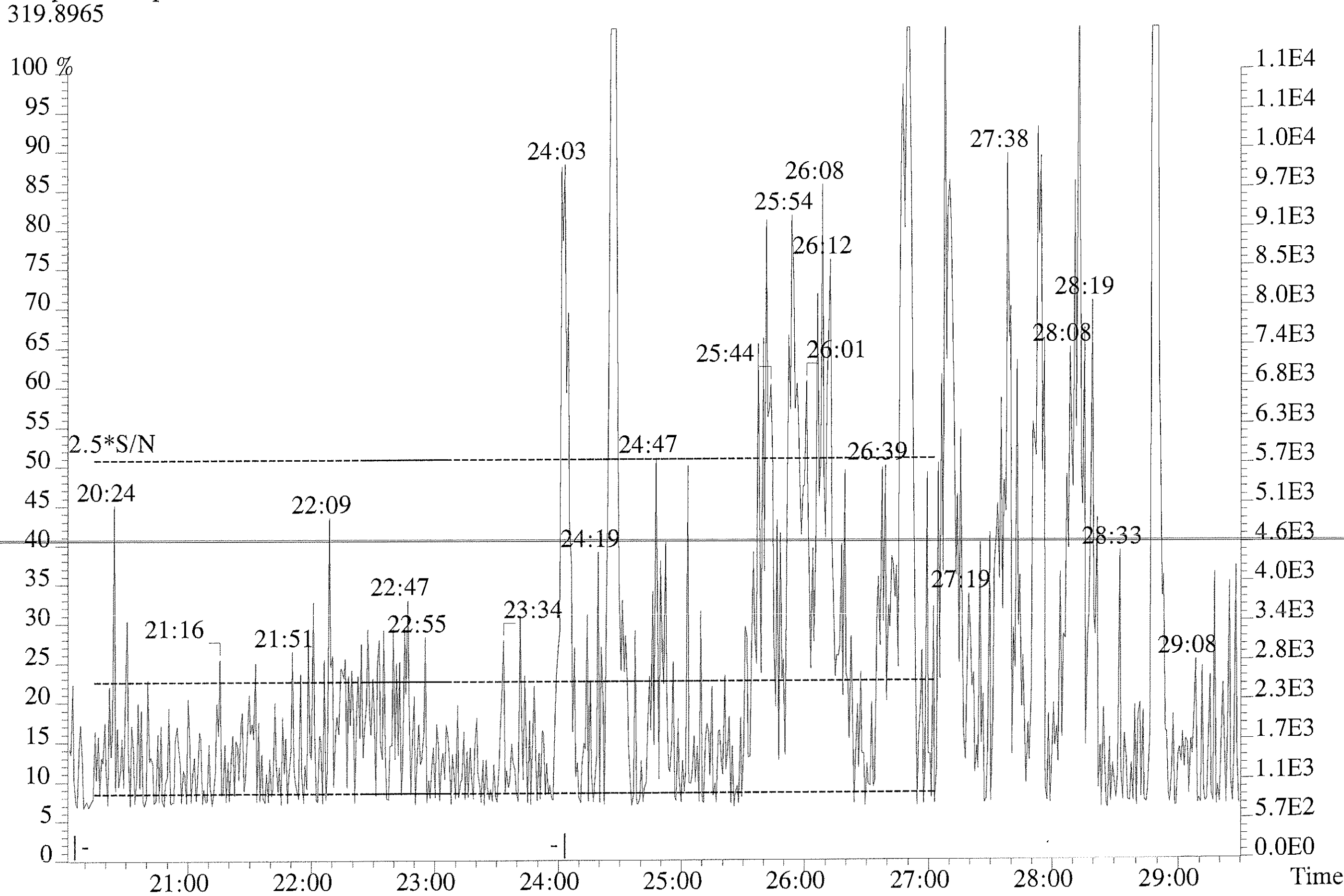
321.8936 SMO(1,3) BSUB(128,15,-3.0)



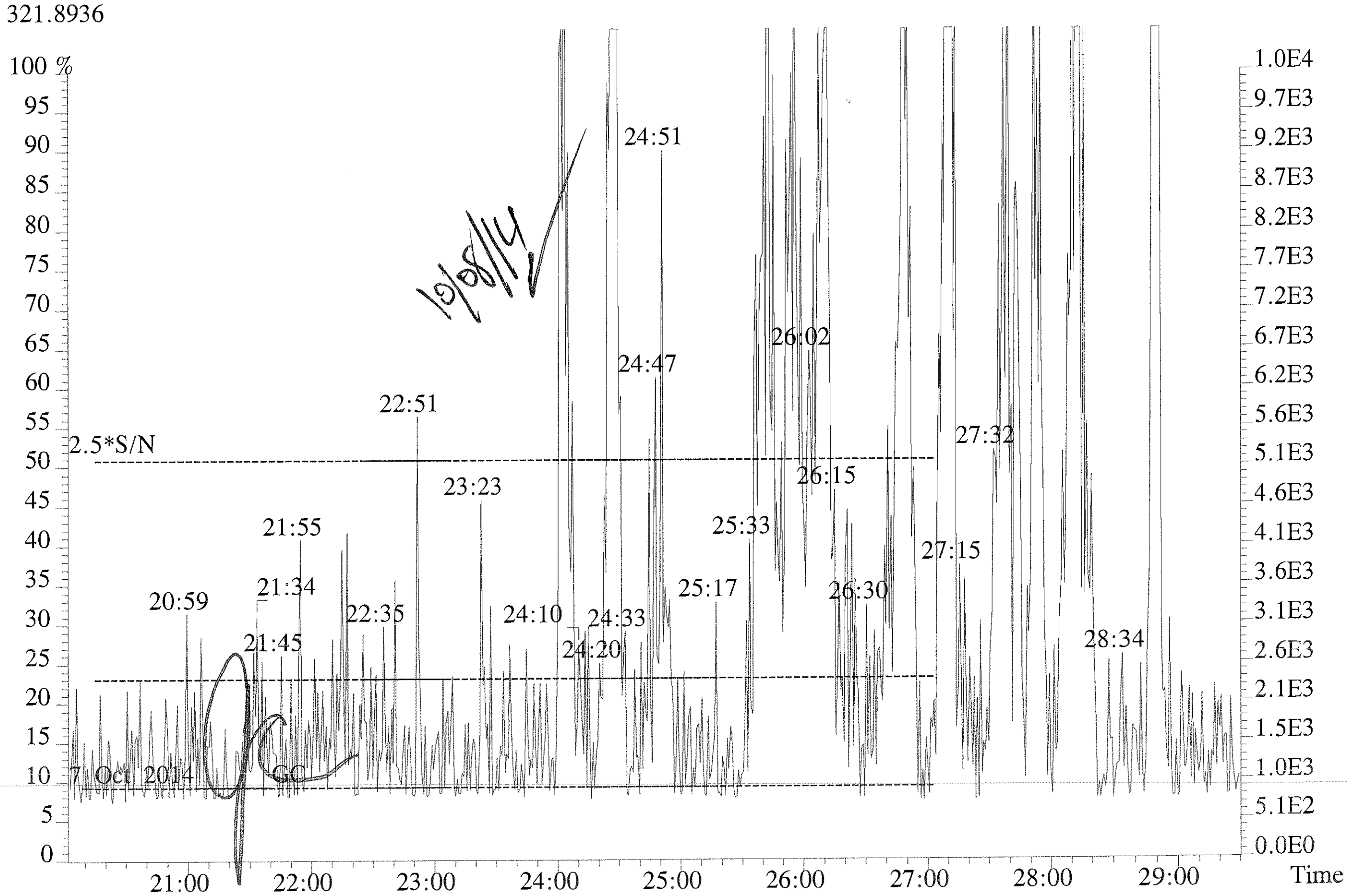
10/07/14

10/08/14

File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
319.8965

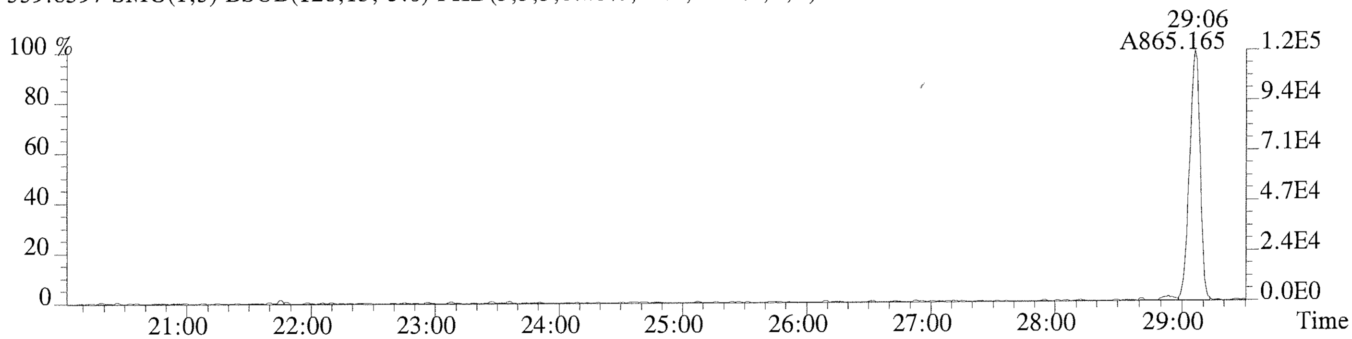


321.8936

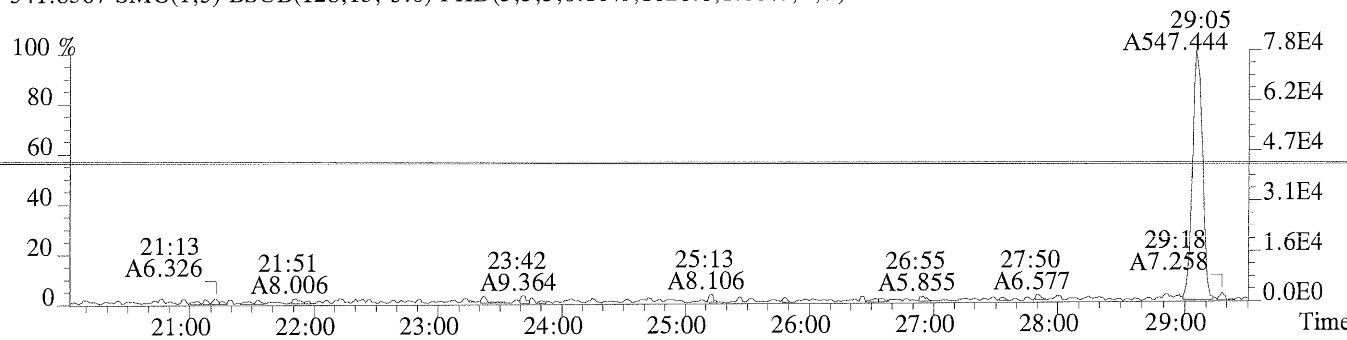


File:P231754 #1-730 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001

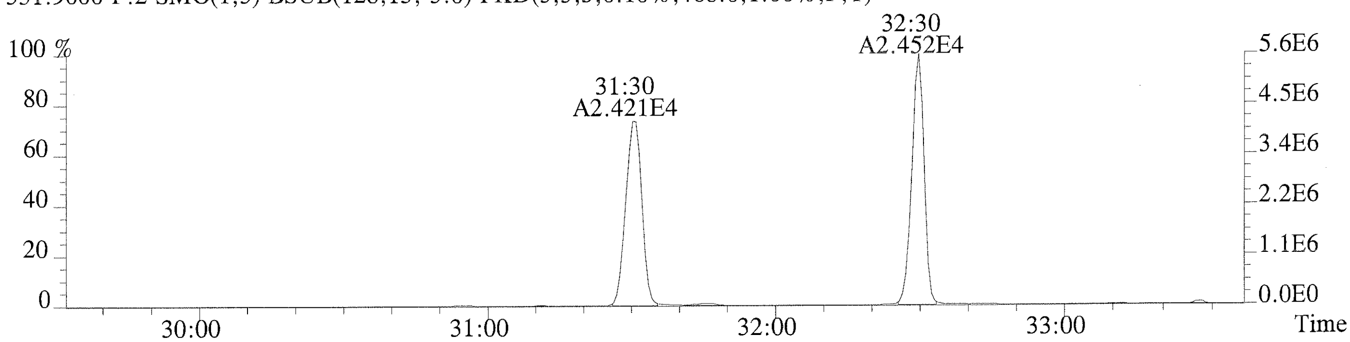
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,44.0,1.00%,F,T)



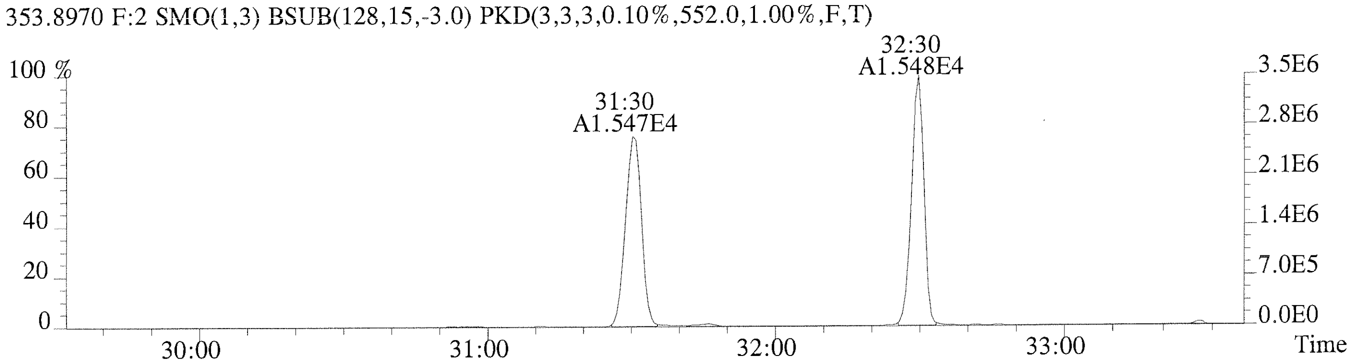
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



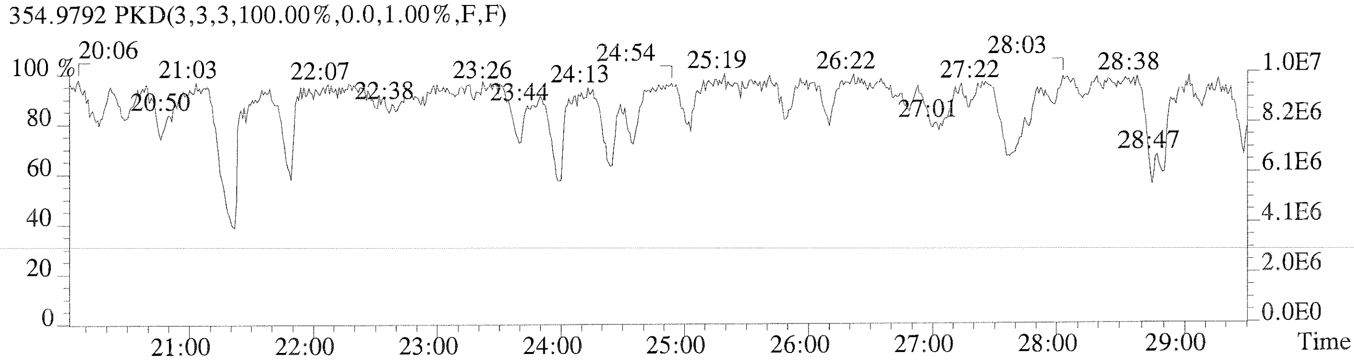
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



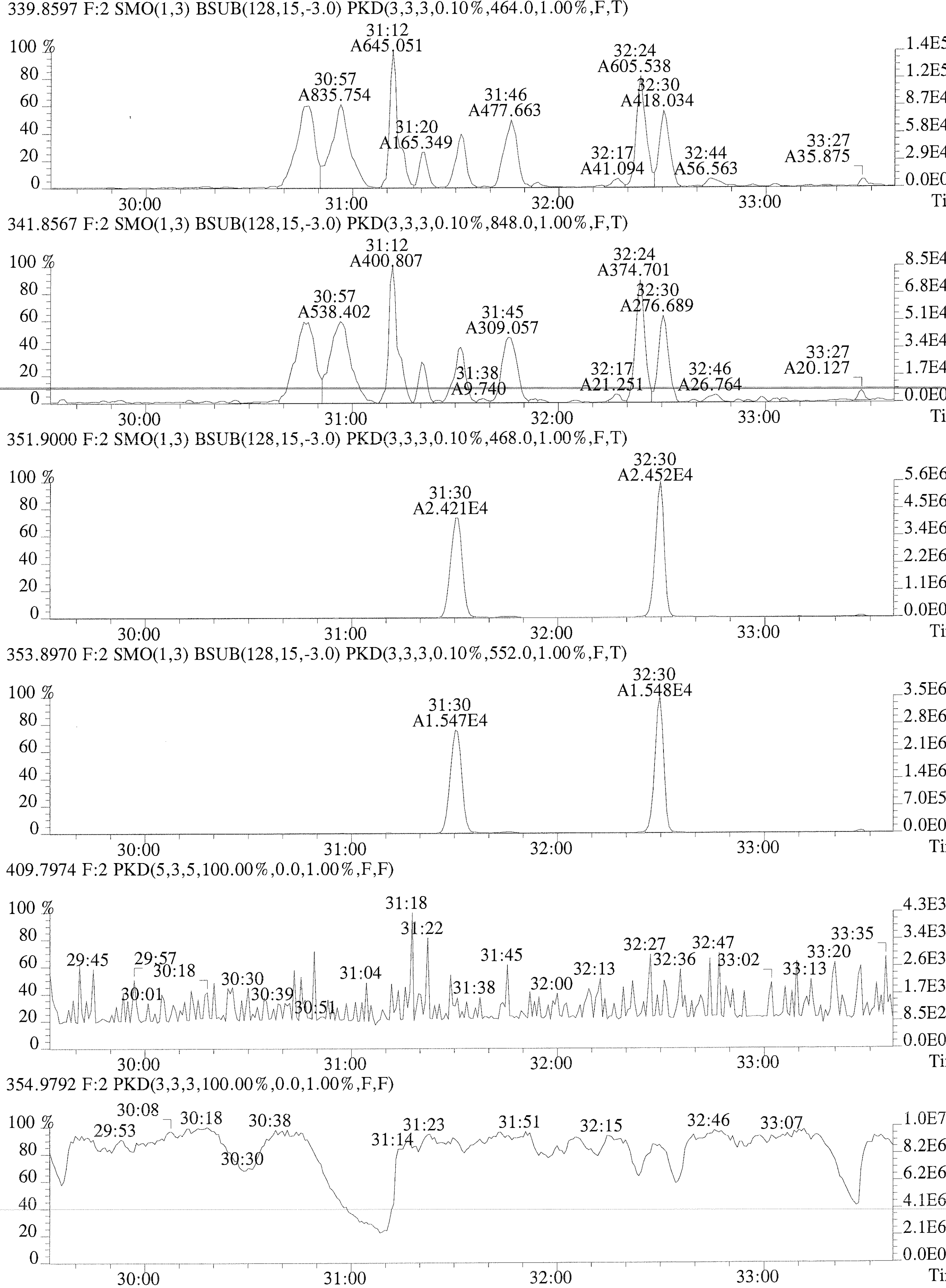
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



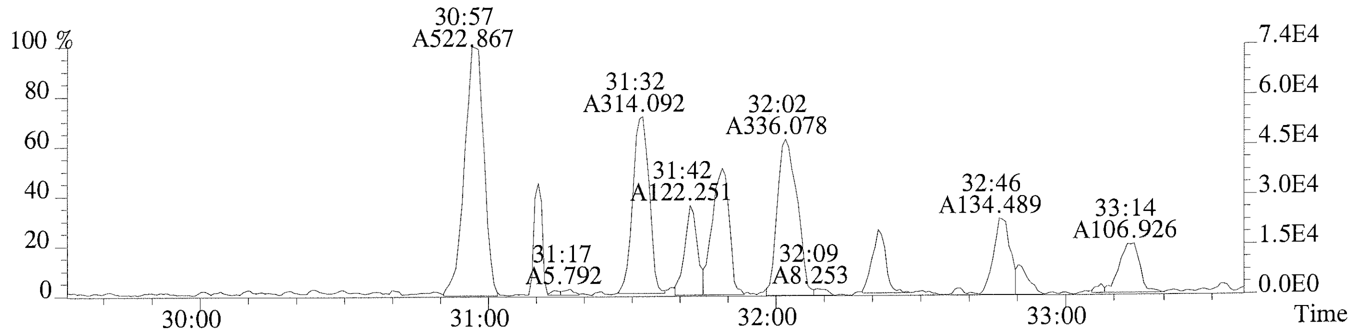
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



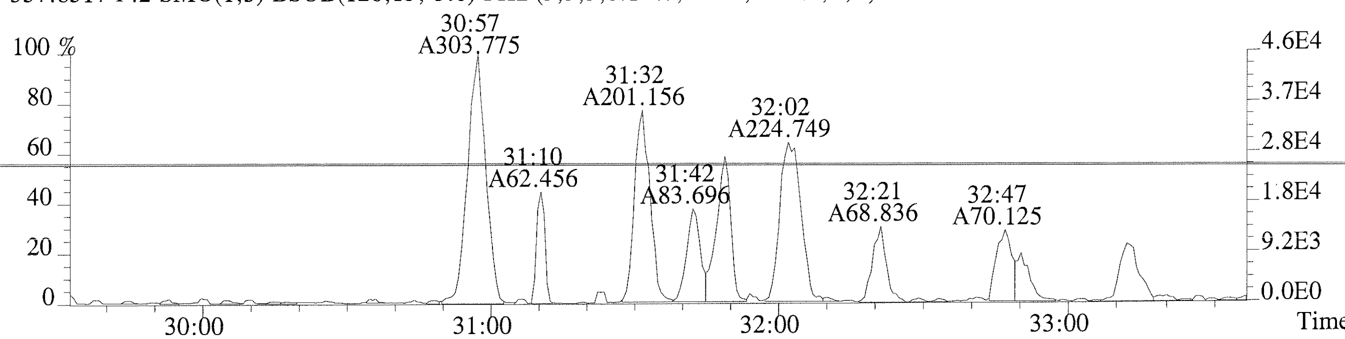
File:P231754 #1-370 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001



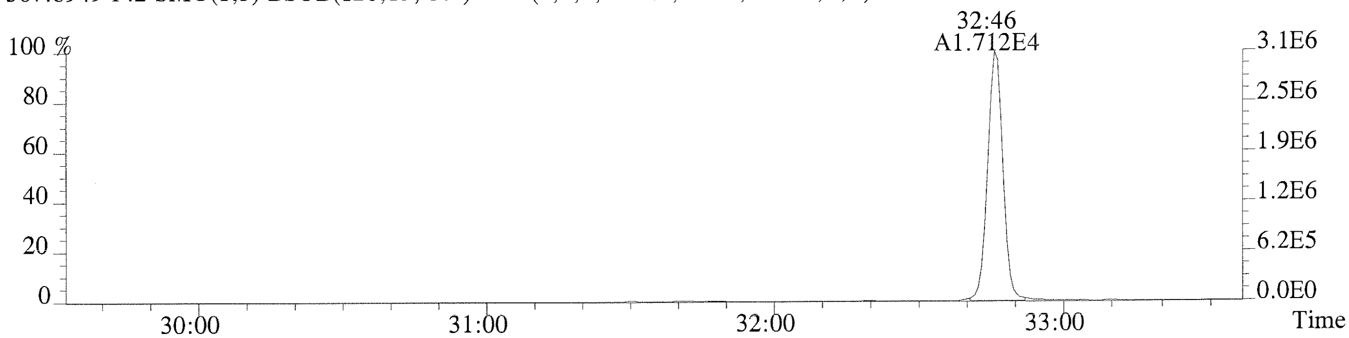
File:P231754 #1-370 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



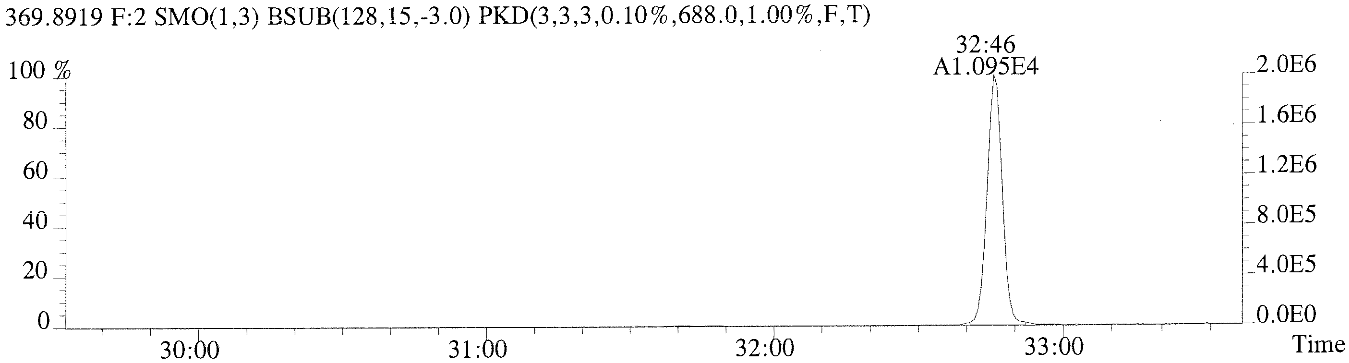
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



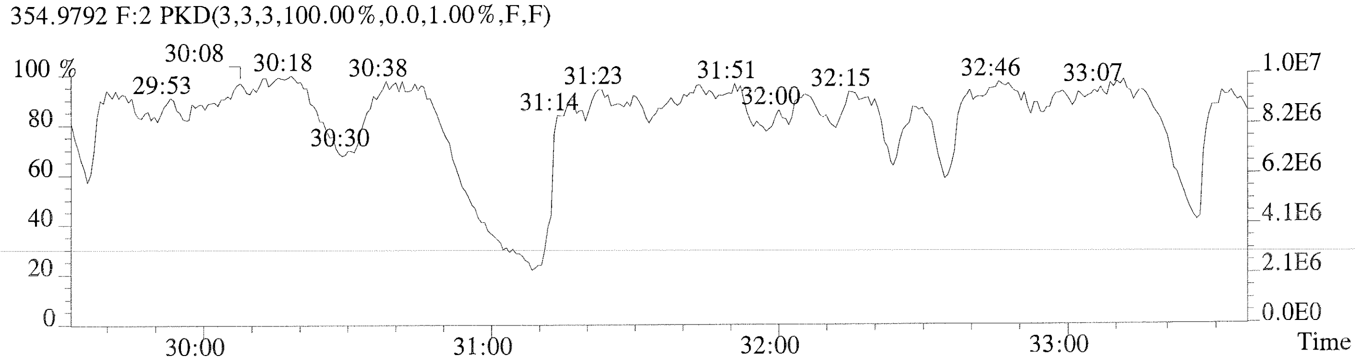
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



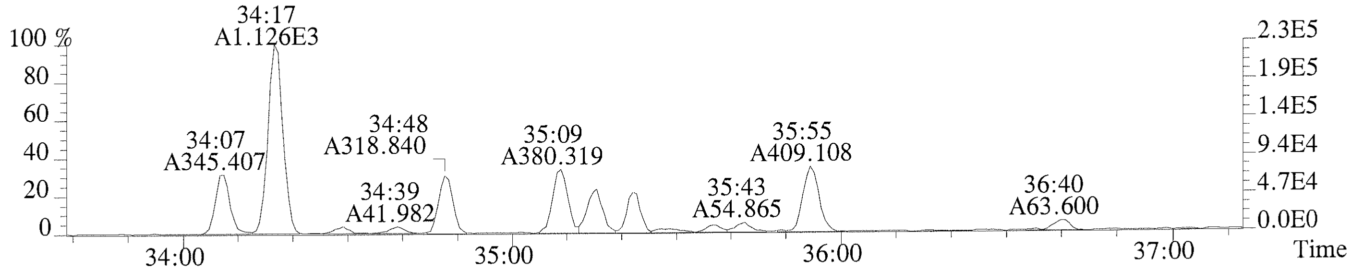
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



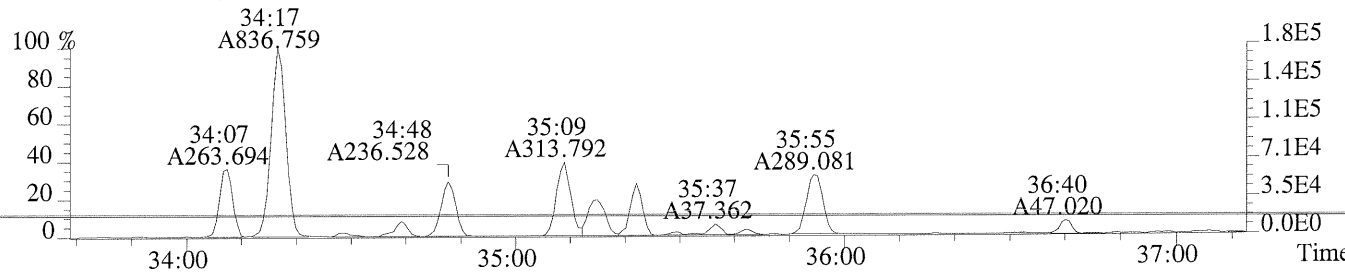
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



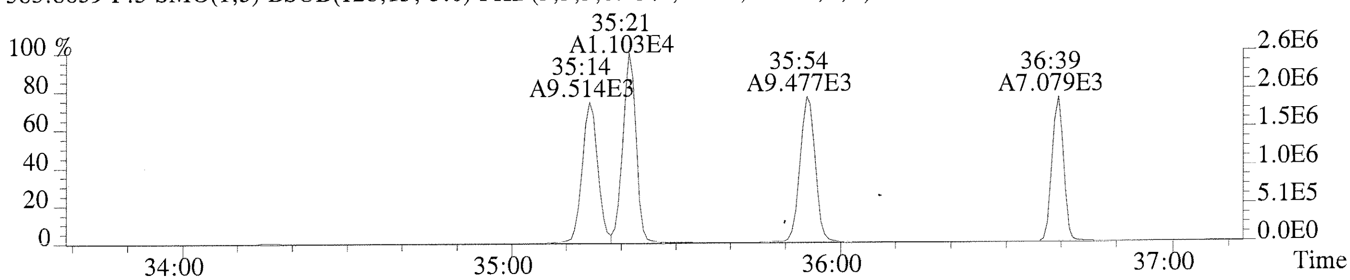
File:P231754 #1-324 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



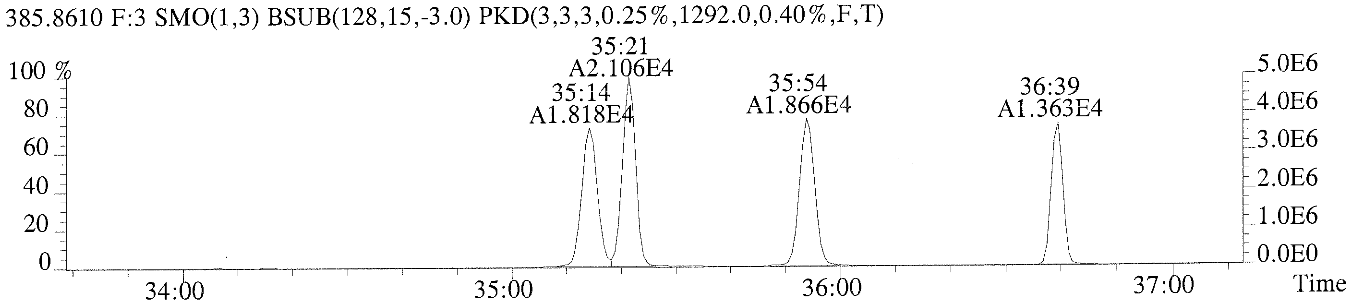
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



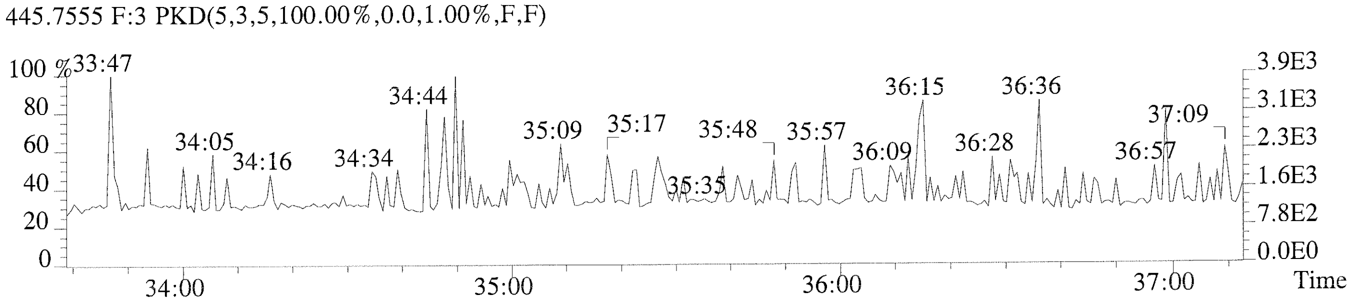
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



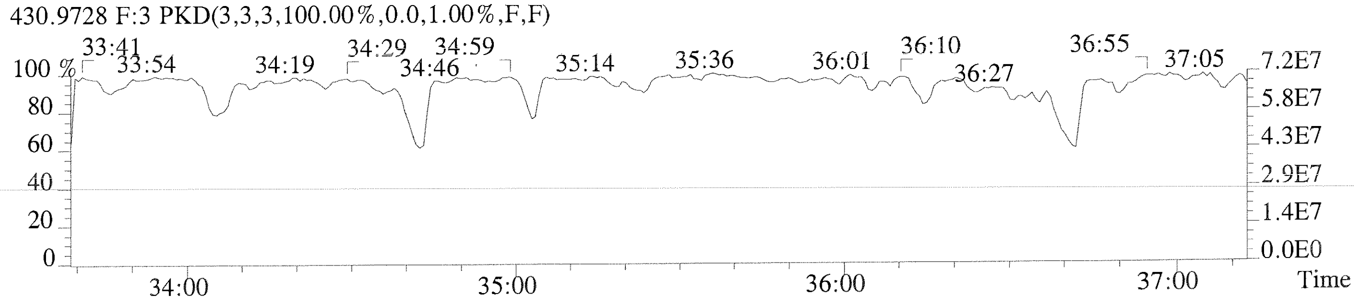
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

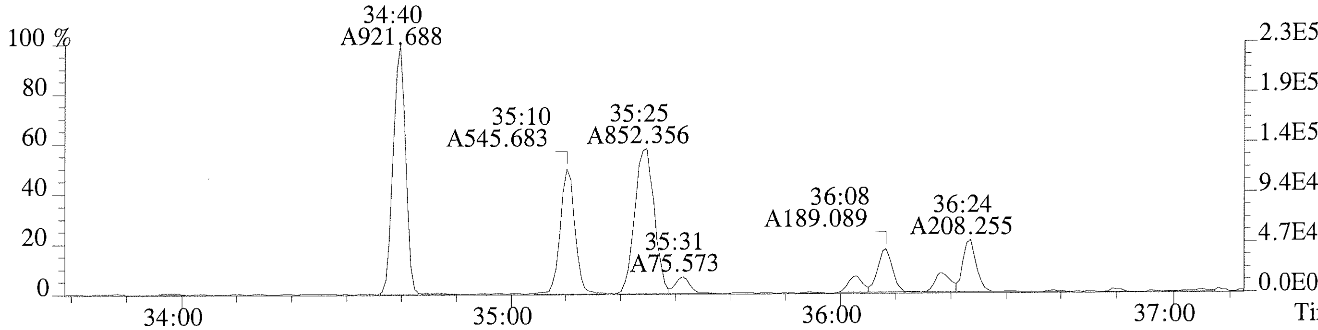


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

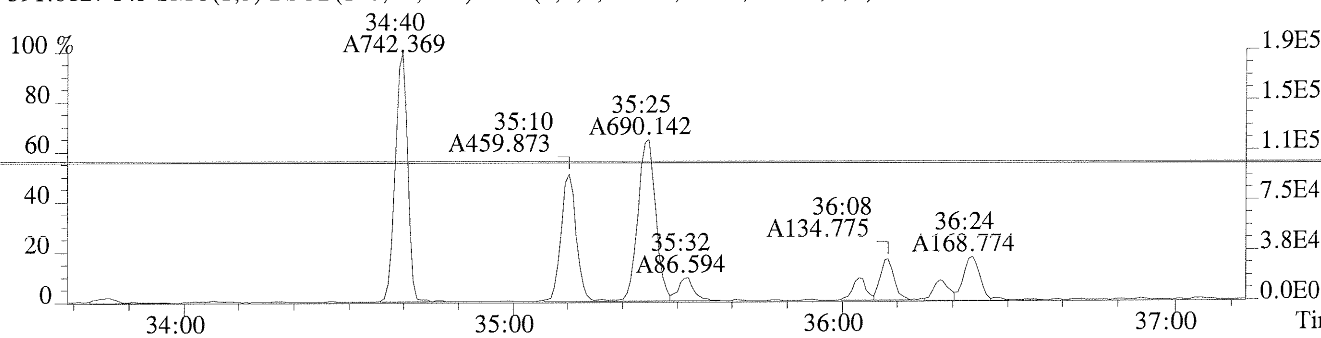


File:P231754 #1-324 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001

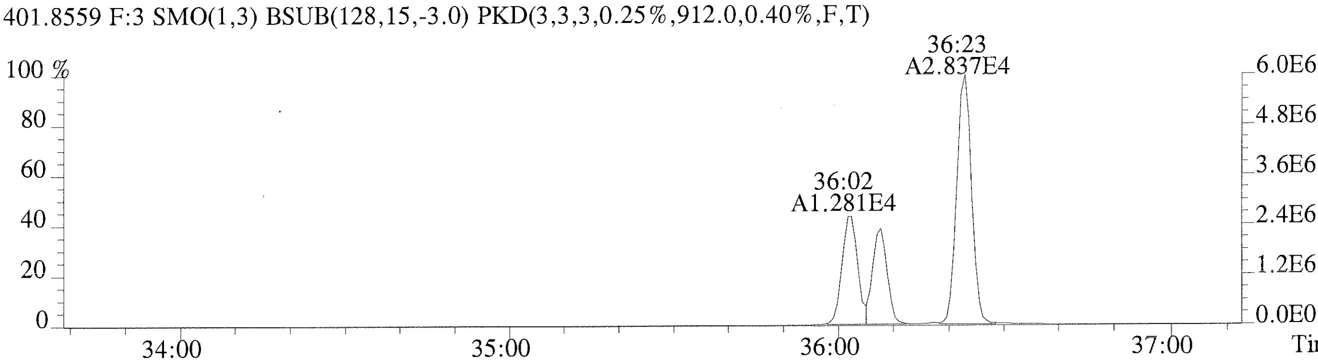
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



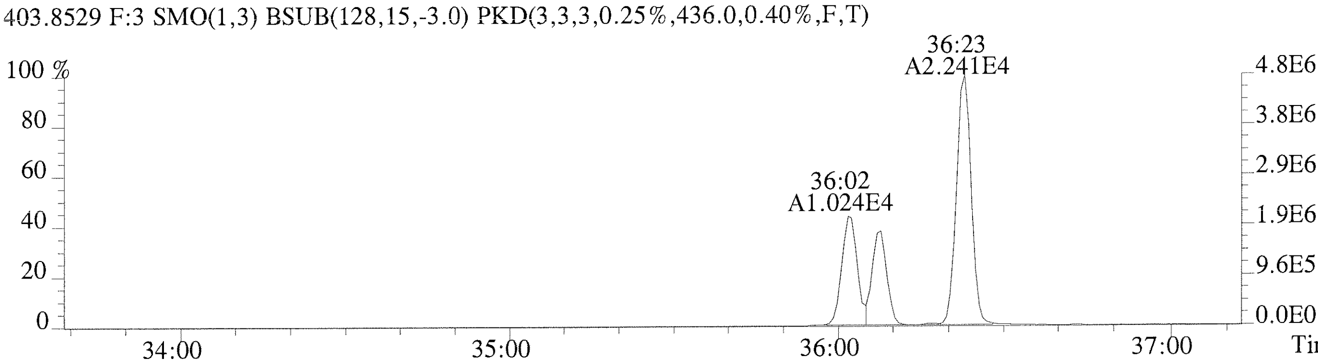
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



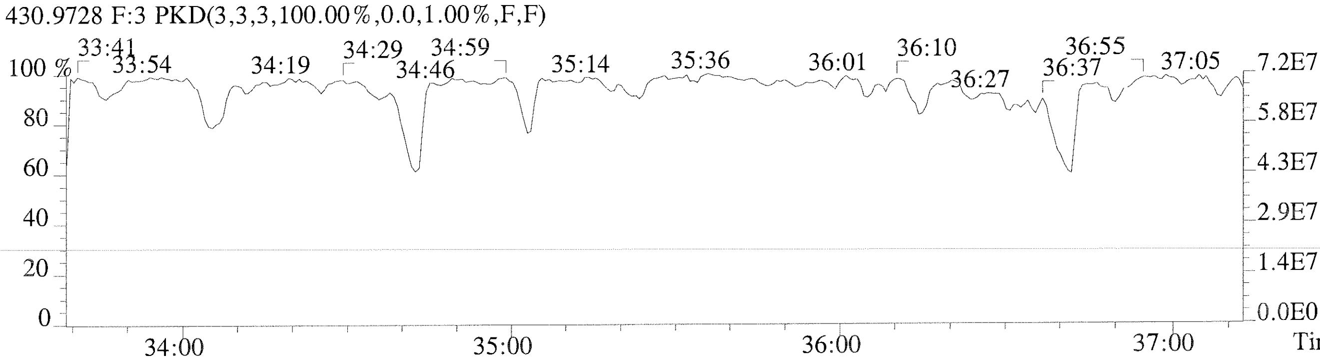
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)

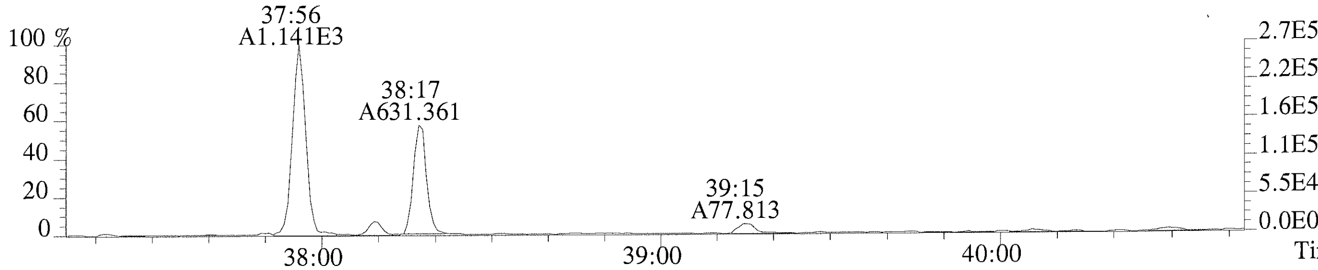


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

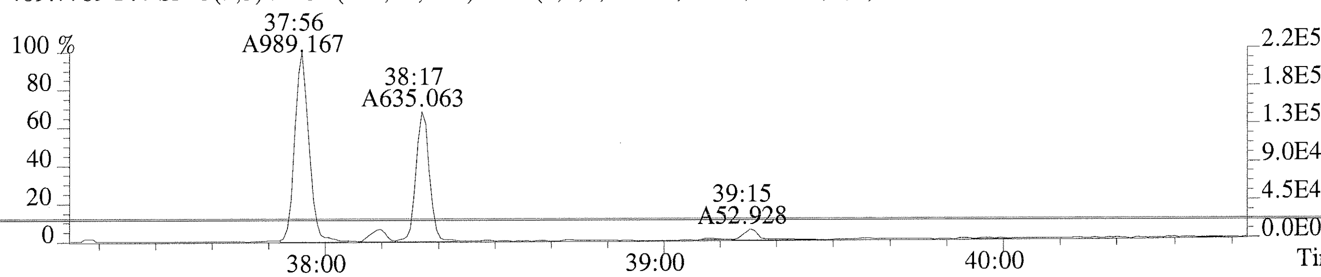


File:P231754 #1-315 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001

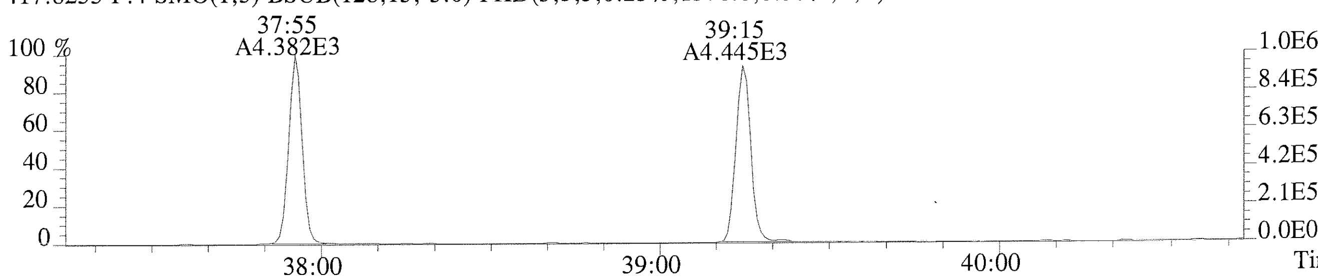
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.50%,F,T)



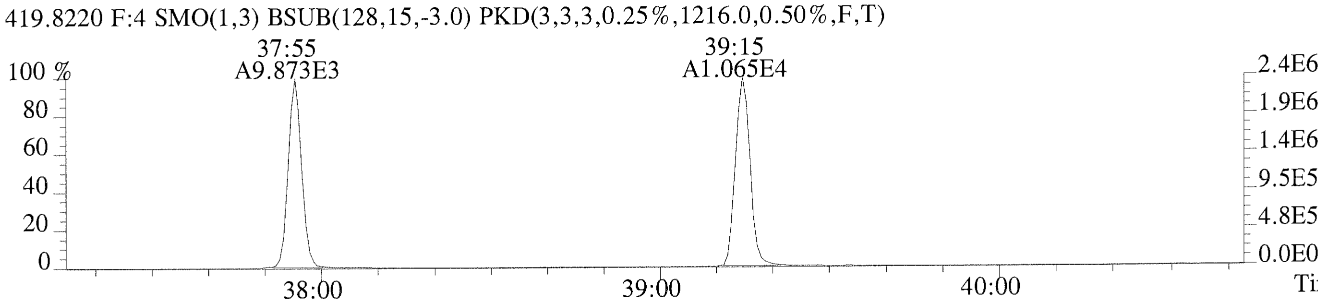
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.50%,F,T)



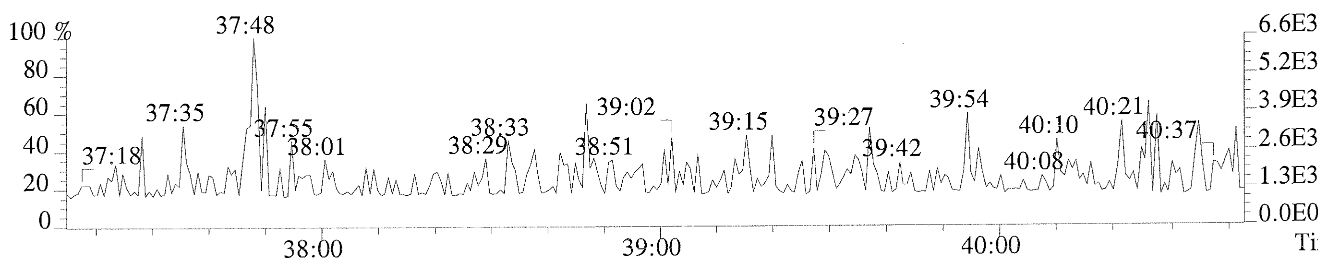
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.50%,F,T)



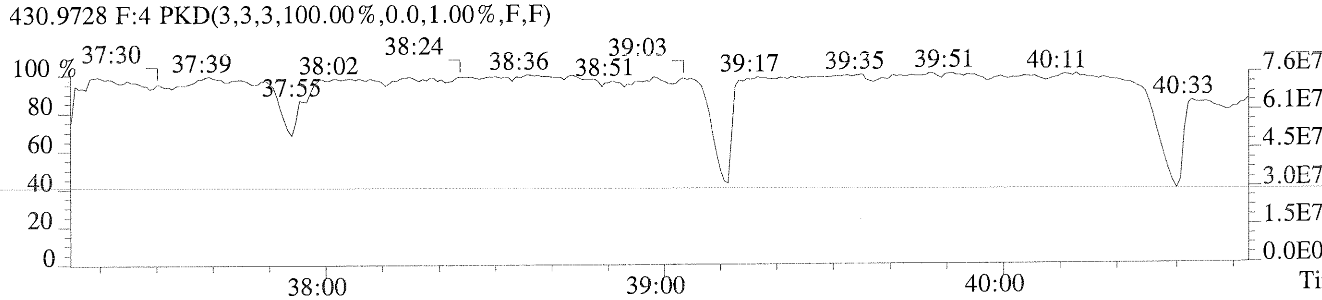
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.50%,F,T)



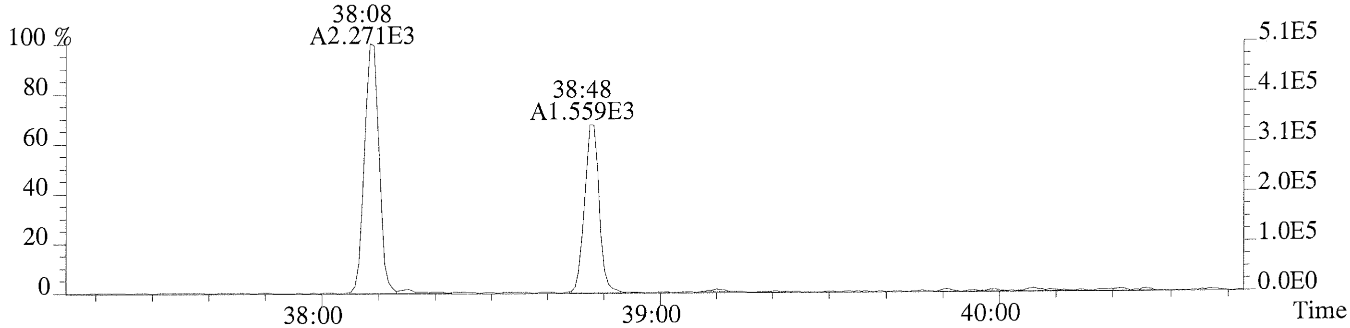
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



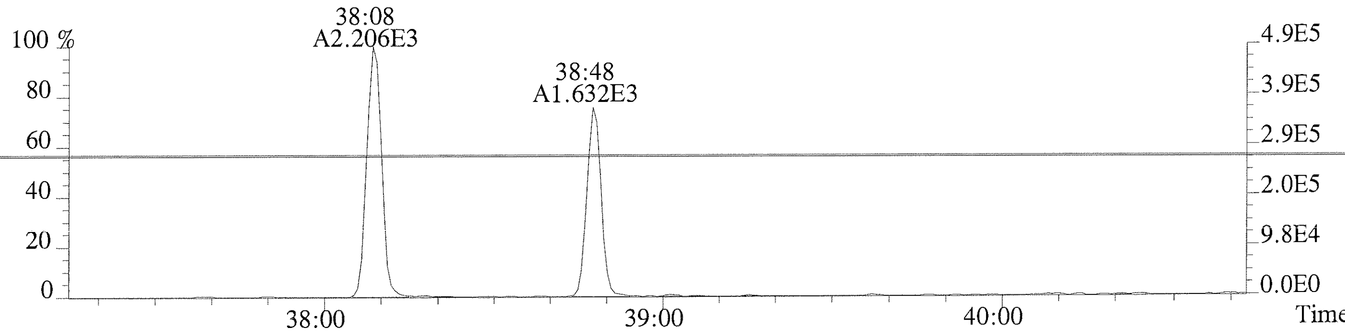
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



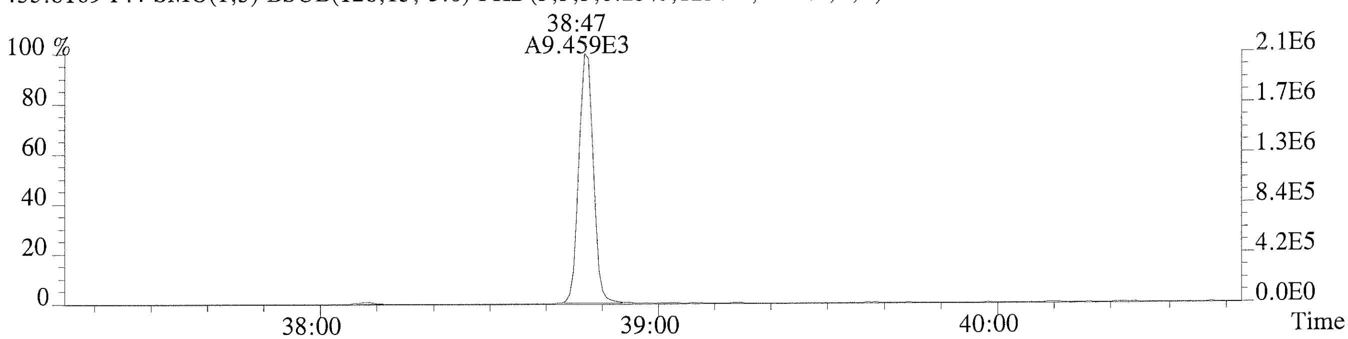
File:P231754 #1-315 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



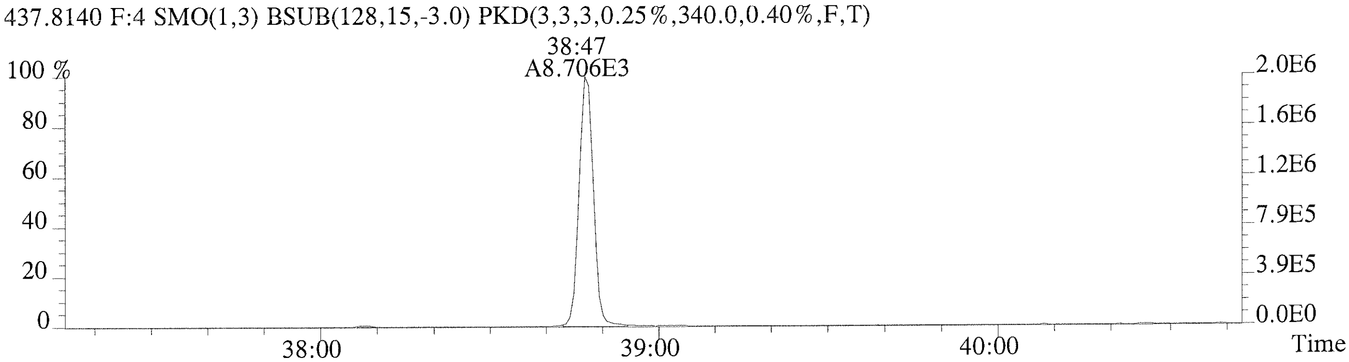
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



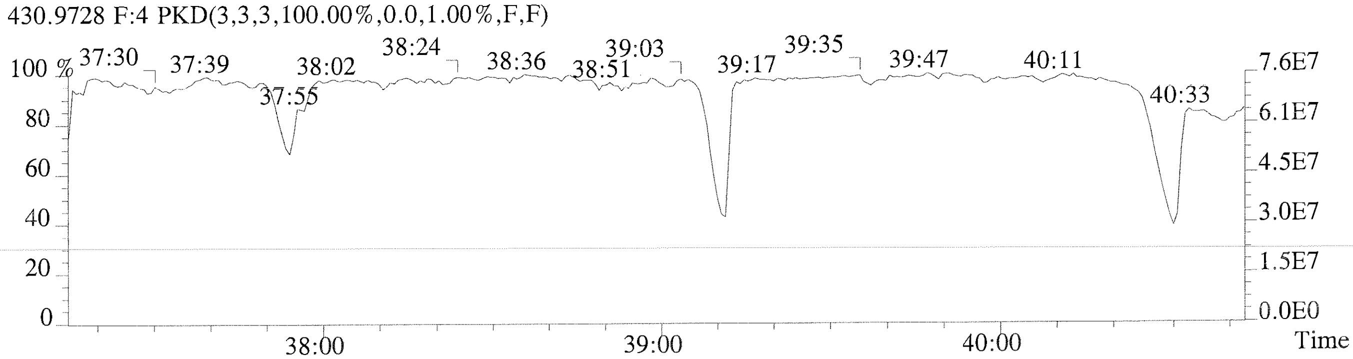
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



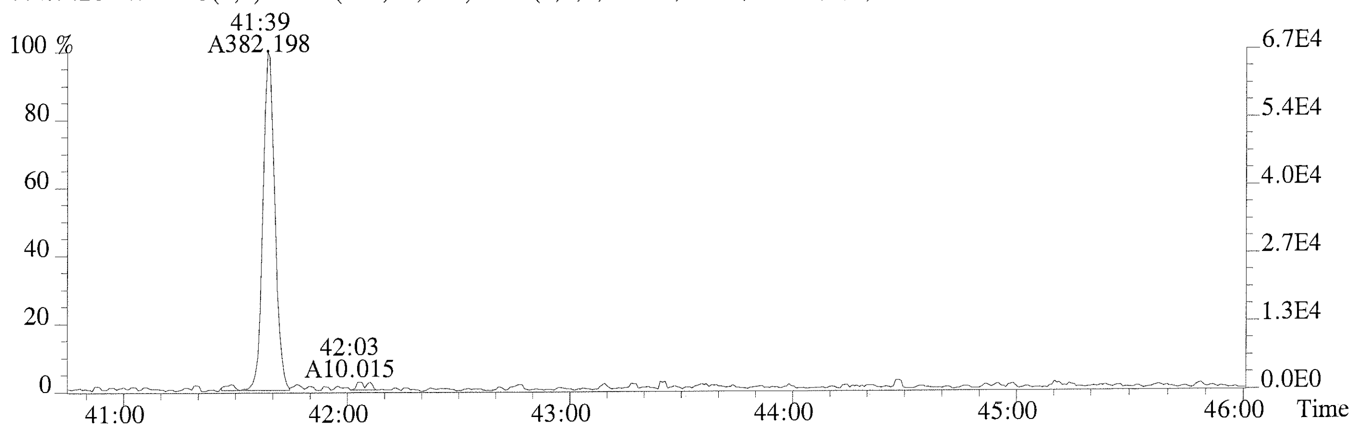
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



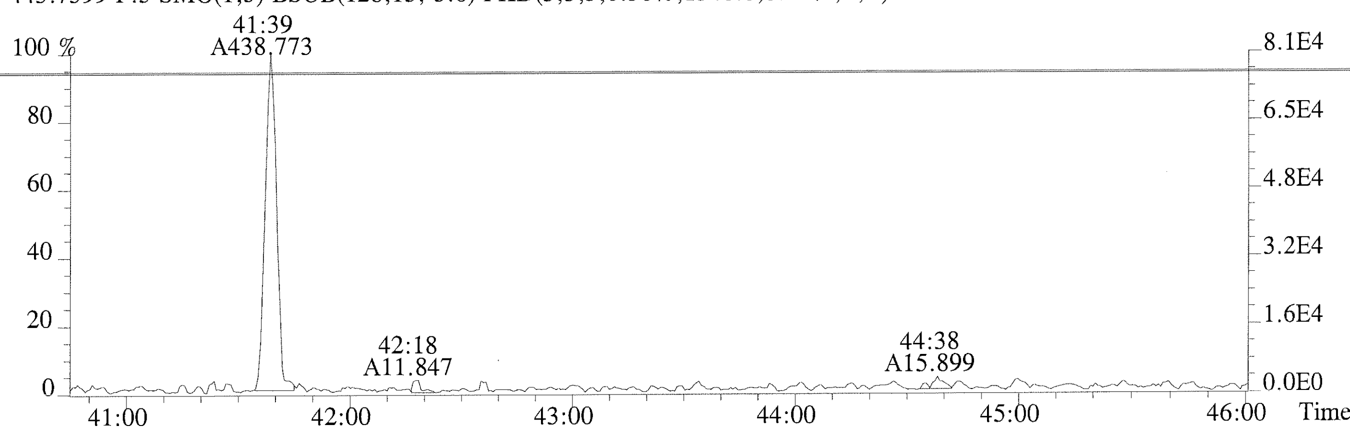
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



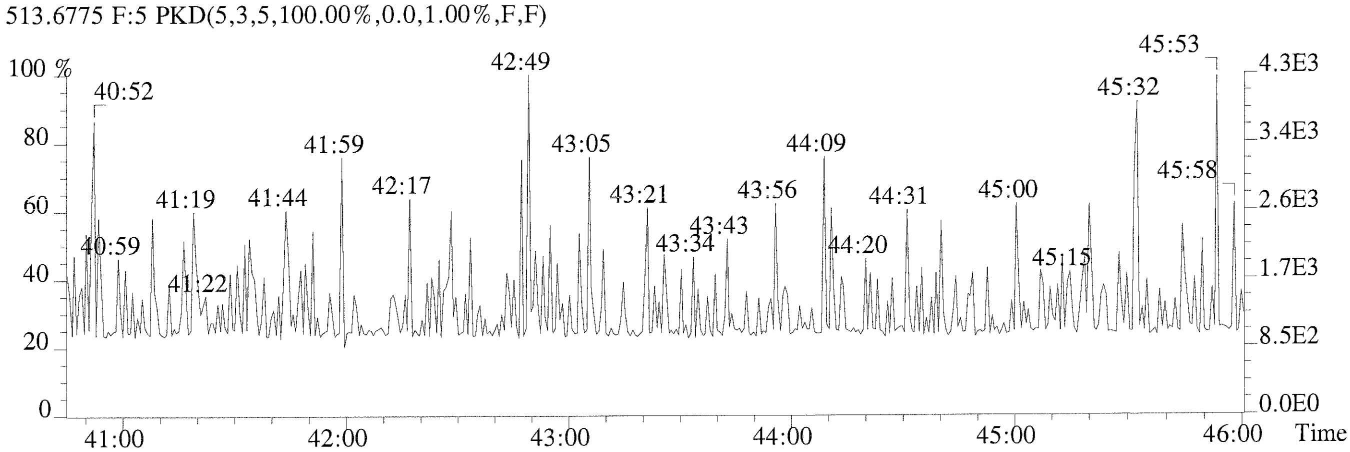
File:P231754 #1-484 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



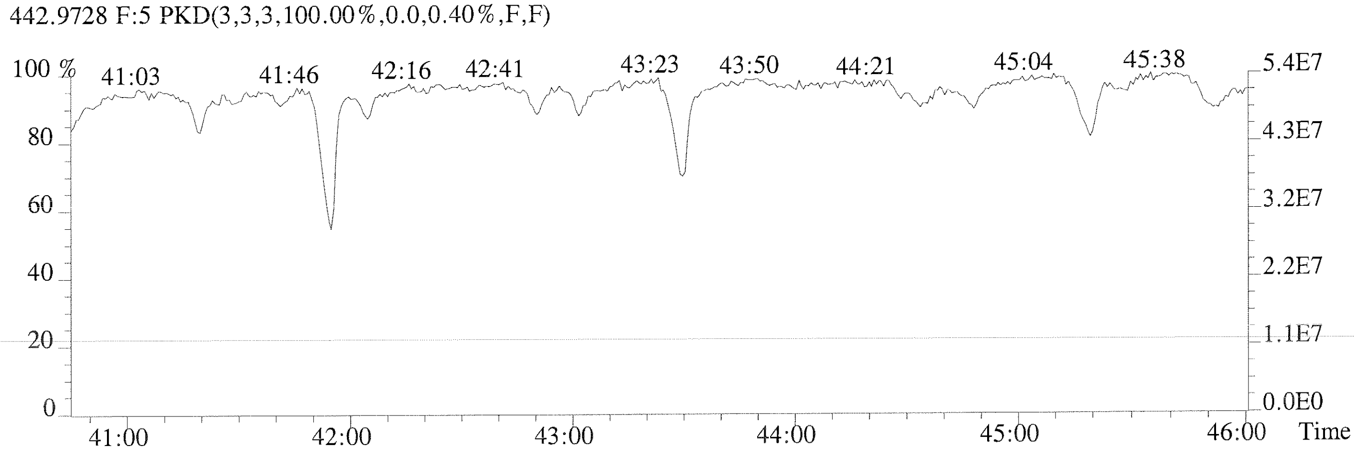
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1540.0,0.40%,F,T)



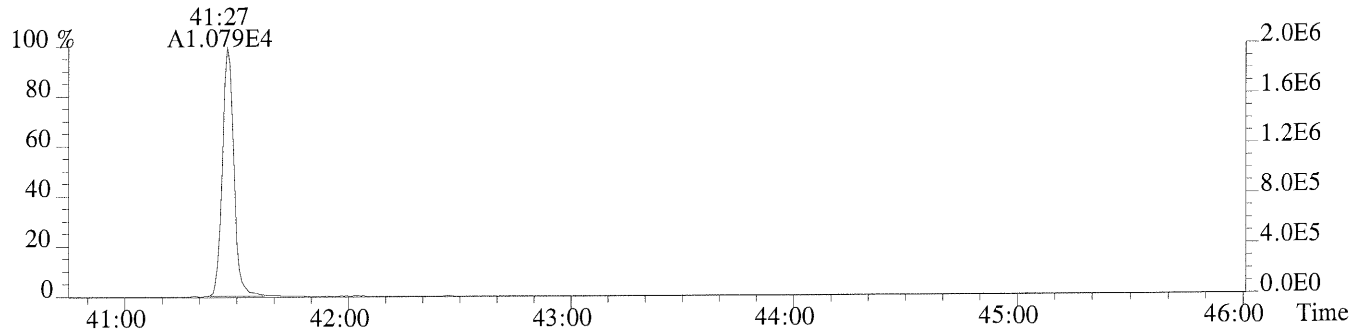
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



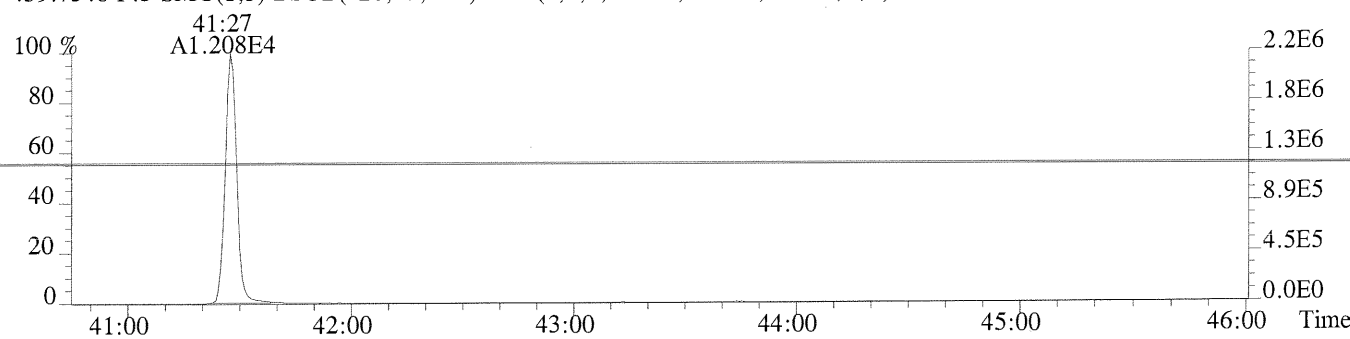
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



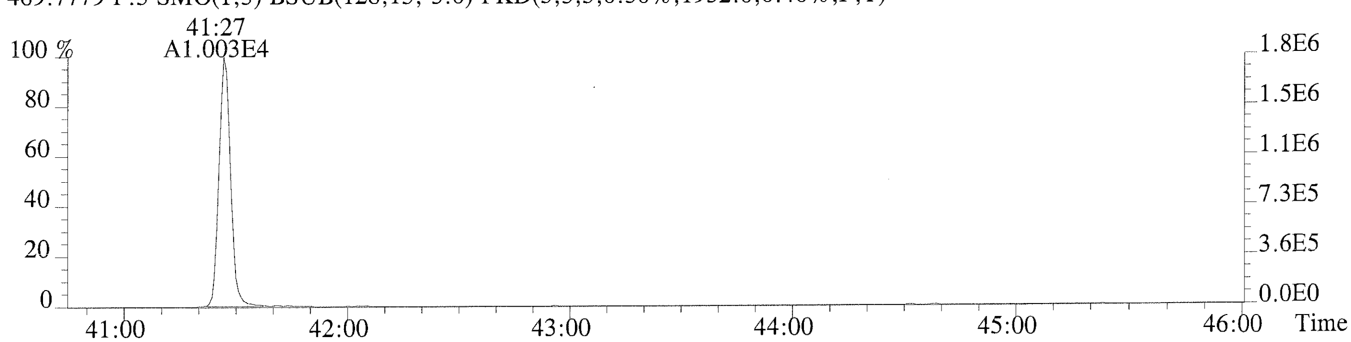
File:P231754 #1-484 Acq: 4-OCT-2014 01:50:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



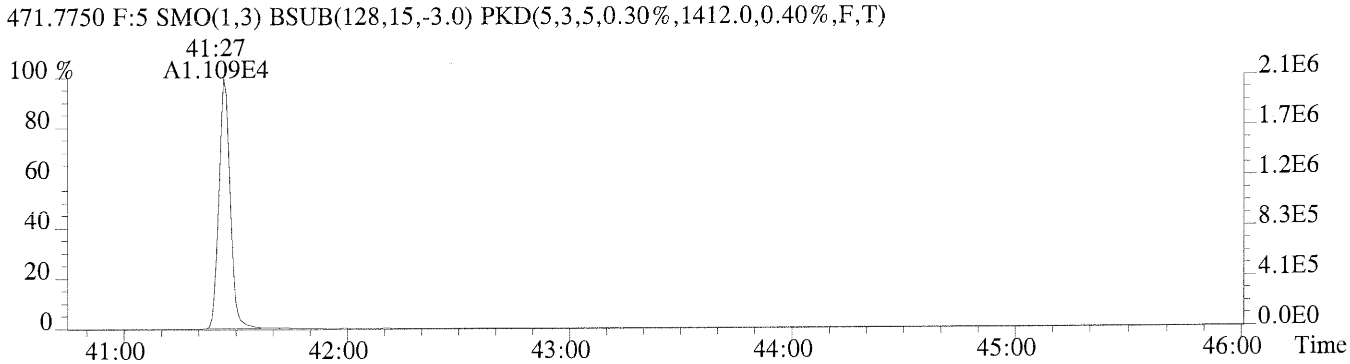
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1920.0,0.40%,F,T)



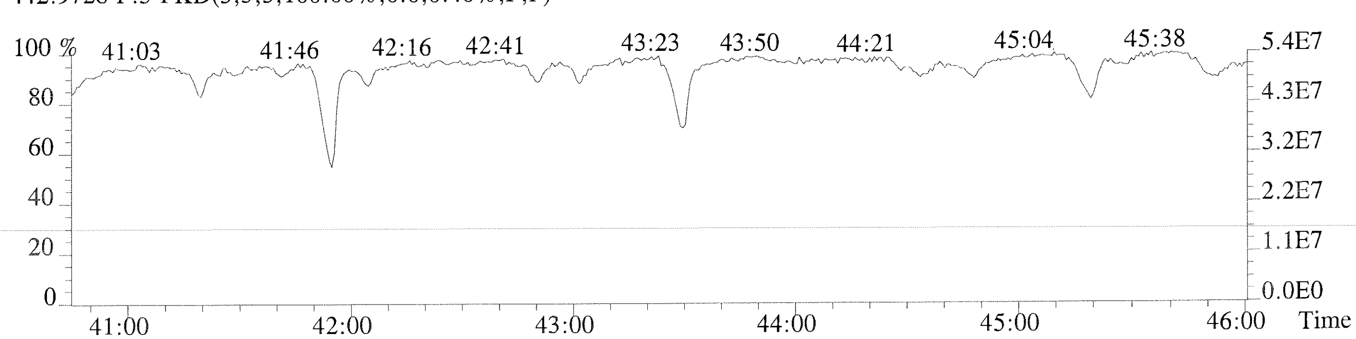
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1932.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1412.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
SBA-ESI-15

Run #14 Filename P174008 Samp: 1 Inj: 1 Acquired: 10-OCT-14 12:30:09
Processed: 10-OCT-14 12:53:14 Sample ID: E1401160-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.945
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:32	4.788e+00	4.822e+00	0.99	no	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:08	4.251e+00	6.066e+00	0.70	no	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:14	5.911e+00	4.021e+00	1.47	no	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:44	5.006e+00	4.050e+00	1.24	yes	yes	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:28	7.746e+00	8.037e+00	0.96	no	yes	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	8.191e+00	7.124e+00	1.15	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.498e+01	1.163e+01	1.29	no	no	1.324
10	Unk	OCDF	42:37	2.585e+01	2.155e+01	1.20	no	no	1.307
~~11~~	~~Unk~~	~~2,3,7,8-TCDD~~	~~NotFnd~~	~~*~~	~~*~~	~~*~~	~~no~~	~~yes~~	~~1.037~~
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.938
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.041
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:10	6.887e+00	6.299e+00	1.09	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.806e+01	1.677e+01	1.08	yes	yes	1.016
17	Unk	OCDD	42:24	1.302e+03	1.411e+03	0.92	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:31	3.887e+01	5.764e+01	0.67	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:37	8.418e+01	4.433e+01	1.90	no	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:30	2.864e+01	2.267e+01	1.26	no	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:07	2.150e+01	5.470e+01	0.39	no	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:13	2.731e+01	5.107e+01	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:43	2.322e+01	3.640e+01	0.64	no	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:28	1.205e+02	2.234e+02	0.54	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	1.973e+01	4.411e+01	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	4.446e+01	1.071e+02	0.42	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:16	1.967e+02	2.471e+02	0.80	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:46	7.178e+01	5.170e+01	1.39	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:51	2.727e+01	2.656e+01	1.03	no	yes	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	3.319e+01	2.582e+01	1.29	yes	yes	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.120e+02	9.186e+01	1.22	no	no	0.862
32	IS	13C-OCDD	42:24	4.139e+02	4.835e+02	0.86	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:43	1.209e+04	1.562e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	1.689e+04	1.328e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:17	1.700e+02				no	1.125

$$\text{OCDD} = \frac{(1.302e+03 + 1.411e+03)\times 4000\text{ pg}\times 1}{(4.139e+02 + 4.835e+02)\times \cancel{10.415}\ 10.212 \times 80.3 \times 1.079} = 1370 \text{ ng/kg}$$

10/16/14

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
SBA-ESI-15

Run #14 Filename P174008 Samp: 1 Inj: 1 Acquired: 10-OCT-14 12:30:09
Processed: 10-OCT-14 12:53:141 LAB. ID: E1401160-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.80e+02	*	*	8.44e+02	*
2	1,2,3,7,8-PeCDF	*	1.40e+02	*	*	5.88e+02	*
3	2,3,4,7,8-PeCDF	1.43e+03	1.40e+02	1.0e+01	1.48e+03	5.88e+02	2.5e+00
4	1,2,3,4,7,8-HxCDF	1.17e+03	4.92e+02	2.4e+00	1.60e+03	6.40e+01	2.5e+01
5	1,2,3,6,7,8-HxCDF	1.55e+03	4.92e+02	3.2e+00	8.32e+02	6.40e+01	1.3e+01
6	2,3,4,6,7,8-HxCDF	1.34e+03	4.92e+02	2.7e+00	1.03e+03	6.40e+01	1.6e+01
7	1,2,3,7,8,9-HxCDF	1.21e+03	4.92e+02	2.5e+00	1.54e+03	6.40e+01	2.4e+01
8	1,2,3,4,6,7,8-HpCDF	2.48e+03	5.24e+02	4.7e+00	1.62e+03	3.16e+02	5.1e+00
9	1,2,3,4,7,8,9-HpCDF	3.04e+03	5.24e+02	5.8e+00	2.66e+03	3.16e+02	8.4e+00
10	OCDF	5.27e+03	2.92e+02	1.8e+01	4.15e+03	5.68e+02	7.3e+00
11	2,3,7,8-TCDD	*	3.08e+02	*	*	3.92e+02	*
12	1,2,3,7,8-PeCDD	*	4.64e+02	*	*	7.20e+01	*
13	1,2,3,4,7,8-HxCDD	*	2.64e+02	*	*	1.64e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.64e+02	*	*	1.64e+02	*
15	1,2,3,7,8,9-HxCDD	1.20e+03	2.64e+02	4.6e+00	1.44e+03	1.64e+02	8.8e+00
16	1,2,3,4,6,7,8-HpCDD	3.78e+03	1.88e+02	2.0e+01	3.62e+03	8.80e+01	4.1e+01
17	OCDD	2.54e+05	2.12e+02	1.2e+03	2.61e+05	5.08e+02	5.1e+02
18	13C-2,3,7,8-TCDF	7.62e+03	1.77e+03	4.3e+00	9.31e+03	7.04e+02	1.3e+01
19	13C-1,2,3,7,8-PeCDF	1.41e+04	2.36e+02	6.0e+01	8.31e+03	1.68e+02	4.9e+01
20	13C-2,3,4,7,8-PeCDF	6.76e+03	2.36e+02	2.9e+01	4.97e+03	1.68e+02	3.0e+01
21	13C-1,2,3,4,7,8-HxCDF	5.37e+03	1.72e+02	3.1e+01	1.11e+04	6.24e+02	1.8e+01
22	13C-1,2,3,6,7,8-HxCDF	5.40e+03	1.72e+02	3.1e+01	1.01e+04	6.24e+02	1.6e+01
23	13C-2,3,4,6,7,8-HxCDF	5.24e+03	1.72e+02	3.0e+01	7.54e+03	6.24e+02	1.2e+01
24	13C-1,2,3,7,8,9-HxCDF	2.55e+04	1.72e+02	1.5e+02	4.63e+04	6.24e+02	7.4e+01
25	13C-1,2,3,4,6,7,8-HpCDF	3.69e+03	6.64e+02	5.6e+00	1.13e+04	3.56e+02	3.2e+01
26	13C-1,2,3,4,7,8,9-HpCDF	9.95e+03	6.64e+02	1.5e+01	2.31e+04	3.56e+02	6.5e+01
27	13C-2,3,7,8-TCDD	3.78e+04	2.64e+03	1.4e+01	4.42e+04	1.14e+03	3.9e+01
28	13C-1,2,3,7,8-PeCDD	1.52e+04	1.04e+02	1.5e+02	1.08e+04	1.28e+02	8.5e+01
29	13C-1,2,3,4,7,8-HxCDD	6.78e+03	1.14e+03	5.9e+00	5.18e+03	5.64e+02	9.2e+00
30	13C-1,2,3,6,7,8-HxCDD	6.99e+03	1.14e+03	6.1e+00	5.79e+03	5.64e+02	1.0e+01
31	13C-1,2,3,4,6,7,8-HpCDD	2.20e+04	5.60e+02	3.9e+01	1.81e+04	1.24e+02	1.5e+02
32	13C-OCDD	7.55e+04	1.64e+02	4.6e+02	9.14e+04	6.40e+02	1.4e+02
33	13C-1,2,3,4-TCDD	2.25e+06	2.64e+03	8.5e+02	2.89e+06	1.14e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+06	1.14e+03	3.3e+03	2.94e+06	5.64e+02	5.2e+03
35	37Cl-2,3,7,8-TCDD	2.77e+04	3.56e+02	7.8e+01			

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Peak List Summary

CLIENT ID.

SBA-ESI-15

LabID: E1401160-002
Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P174008 Sample: 1 Injection: 1 Function: 3
Llim: 34:58 Ulim: 37:41
Acquired: 10-OCT-14 12:30:09 Processed: 10-OCT-14 12:53:14
Mass: 373.8210 375.8180 Tot Response: 9.06e+00 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:44	5.01e+00	4.05e+00	1.24	yes	9.06e+00	2,3,4,6,7,8-HxCDF	y	n

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Peak List Summary

CLIENT ID.

SBA-ESI-15

LabID: E1401160-002
Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P174008 Sample: 1 Injection: 1 Function: 3
Llim: 35:27 Ulim: 37:16
Acquired: 10-OCT-14 12:30:09 Processed: 10-OCT-14 12:53:14
Mass: 389.8160 391.8130 Tot Response: 1.32e+01 RRF: 1.040

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:10	6.89e+00	6.30e+00	1.09	yes	1.32e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SBA-ESI-15

LabID: E1401160-002
Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P174008 Sample: 1 Injection: 1 Function: 4
Llim: 38:37 Ulim: 40:17
Acquired: 10-OCT-14 12:30:09 Processed: 10-OCT-14 12:53:14
Mass: 407.7820 409.7790 Tot Response: 1.53e+01 RRF: 1.365

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:42	8.19e+00	7.12e+00	1.15	yes	1.53e+01	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SBA-ESI-15

LabID: E1401160-002
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P174008 Sample: 1 Injection: 1 Function: 4
Llim: 38:51 Ulim: 39:47
Acquired: 10-OCT-14 12:30:09 Processed: 10-OCT-14 12:53:14
Mass: 423.7770 425.7740 Tot Response: 3.48e+01 RRF: 1.016

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:37	1.81e+01	1.68e+01	1.08	yes	3.48e+01	1,2,3,4,6,7,8-HpCDD	y	n

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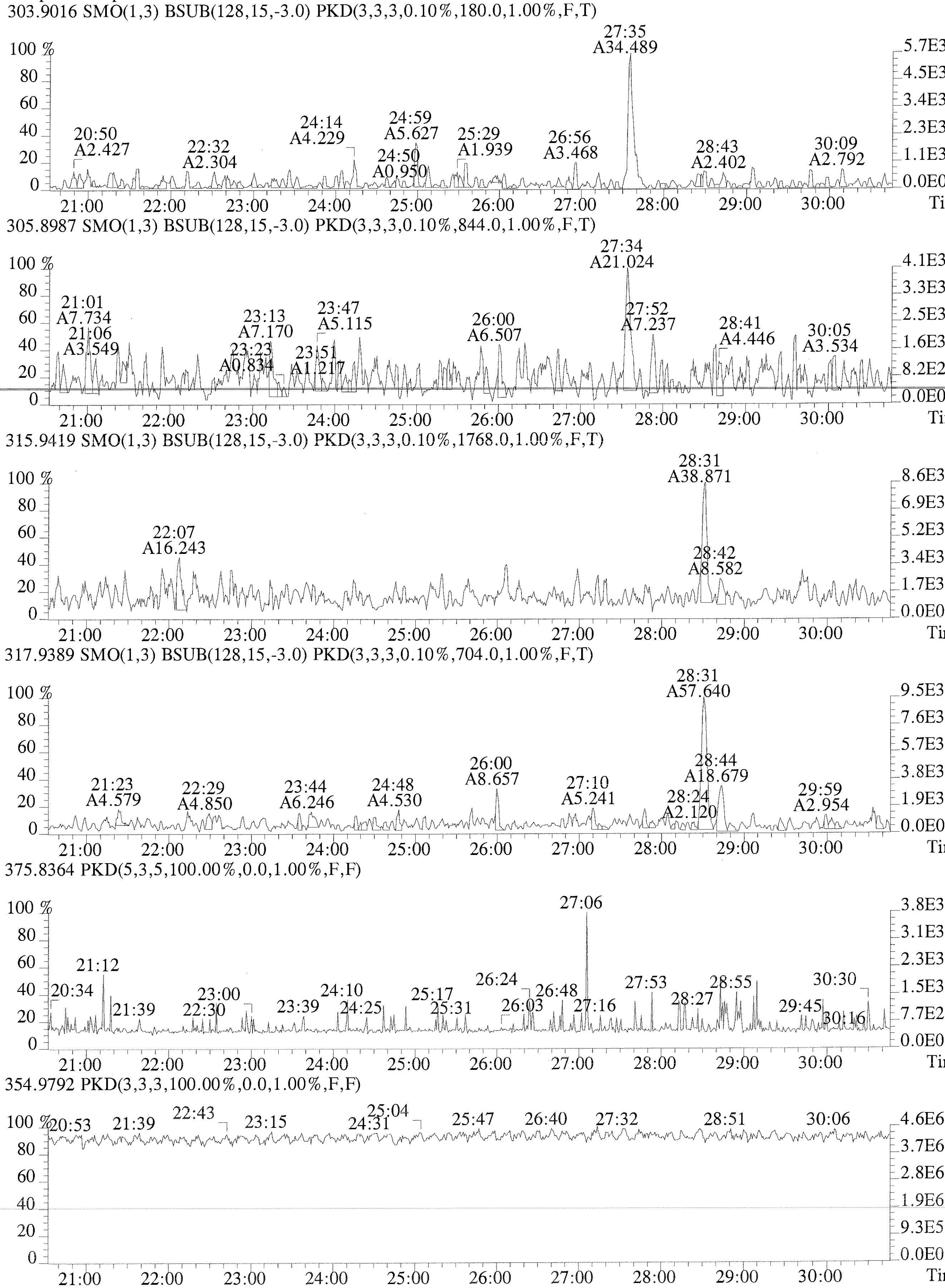
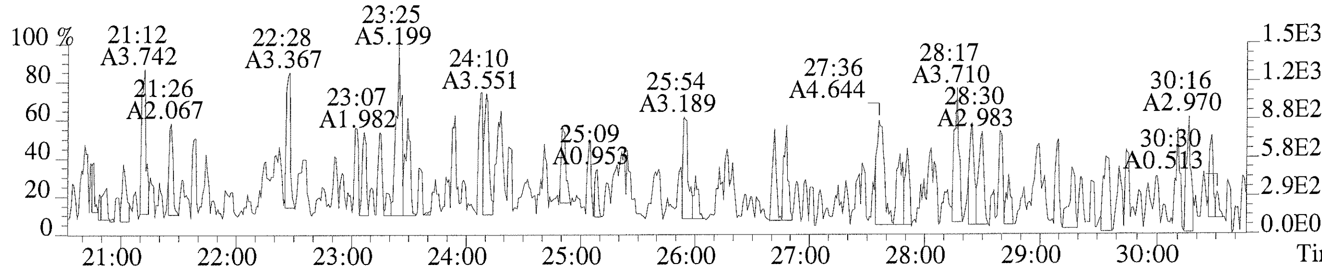
File:P174008 #1-788 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002

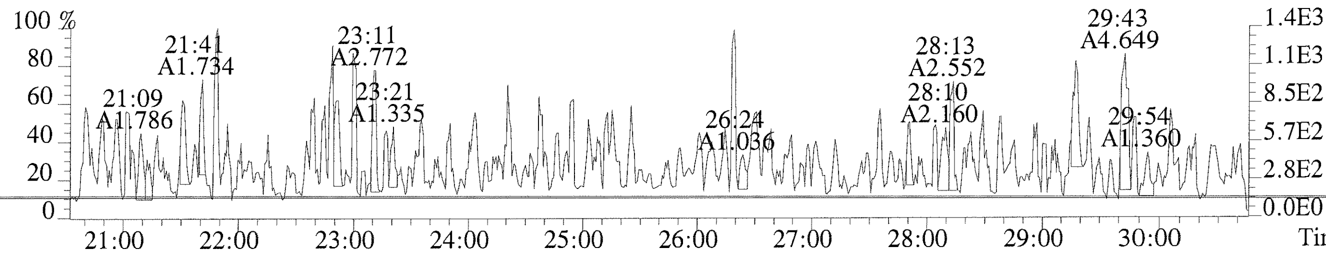


File:P174008 #1-788 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002

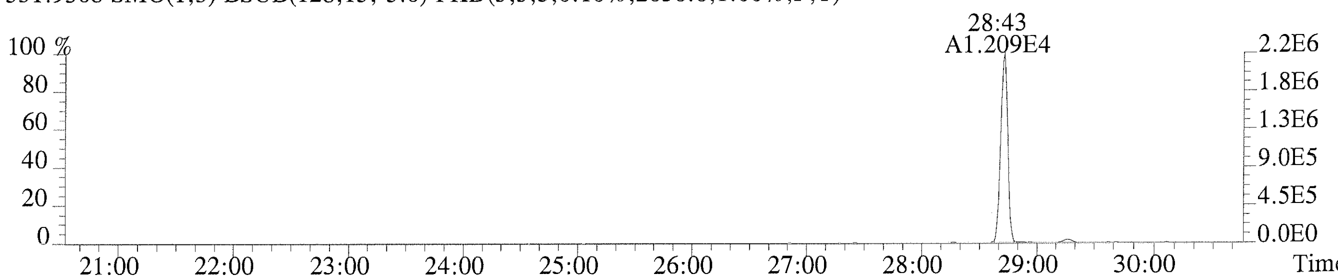
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



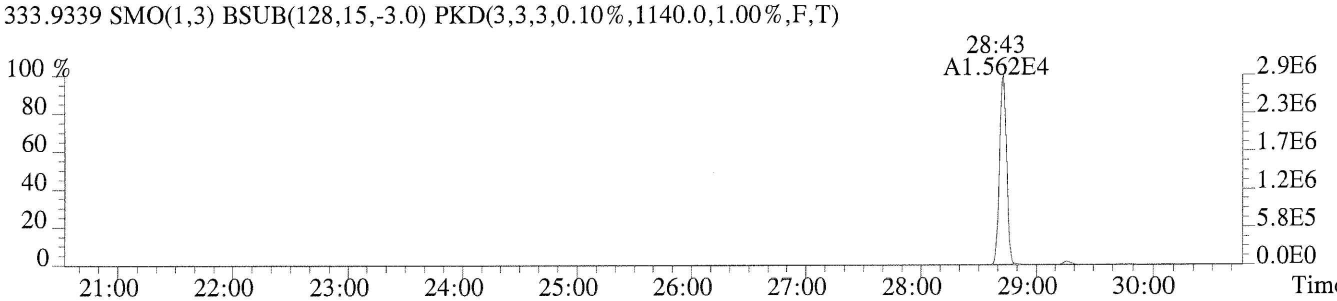
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



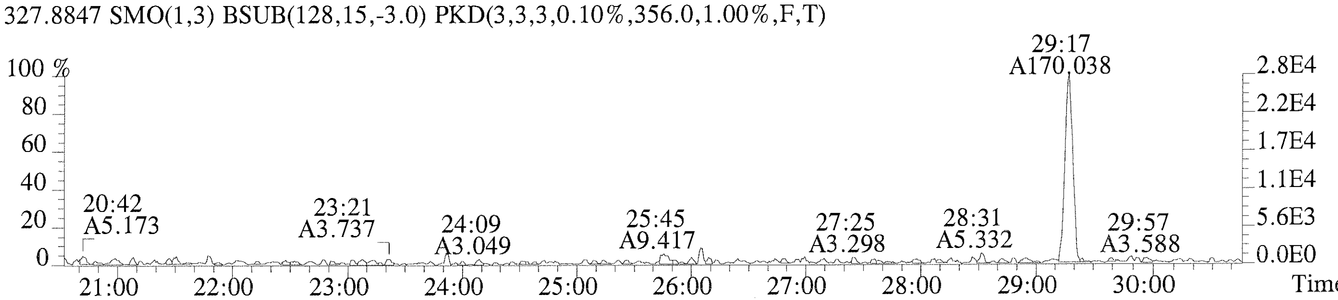
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



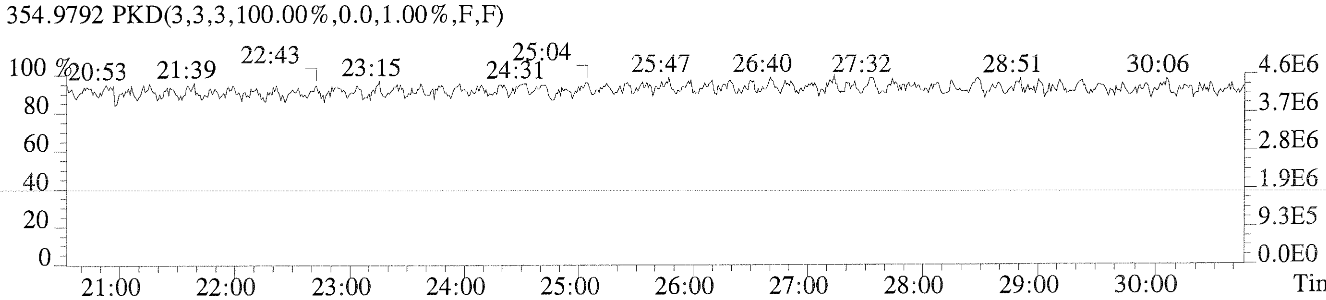
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



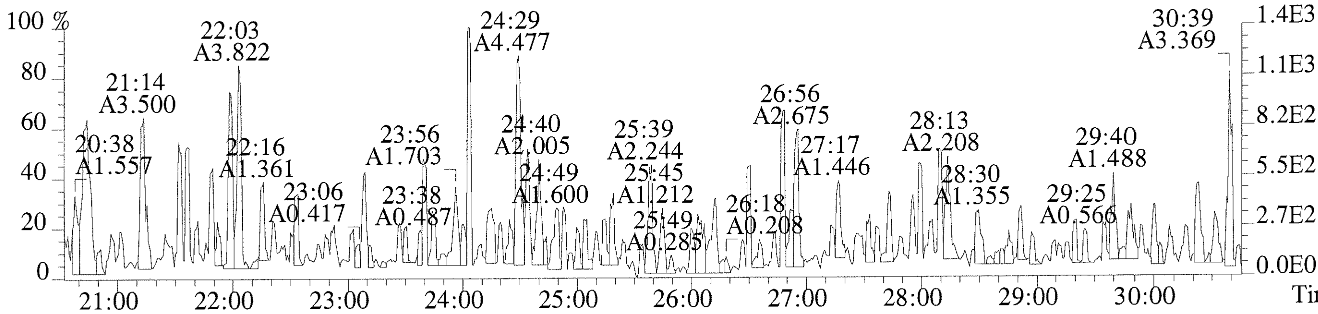
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



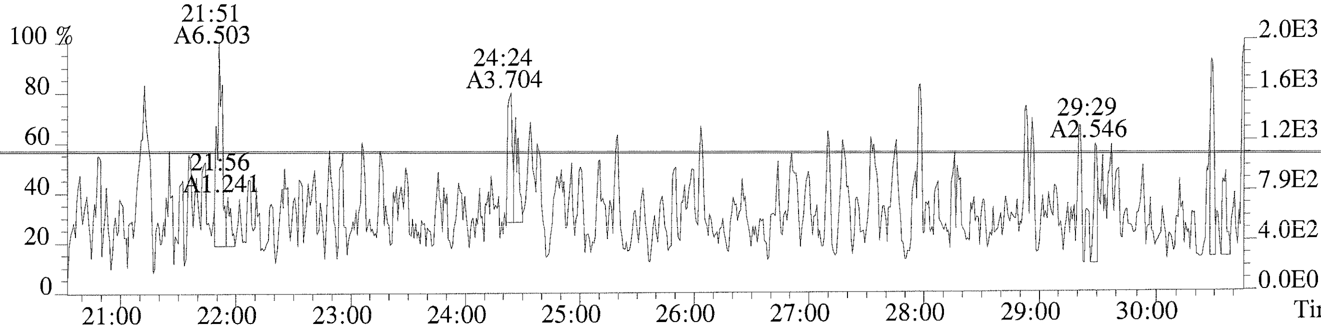
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



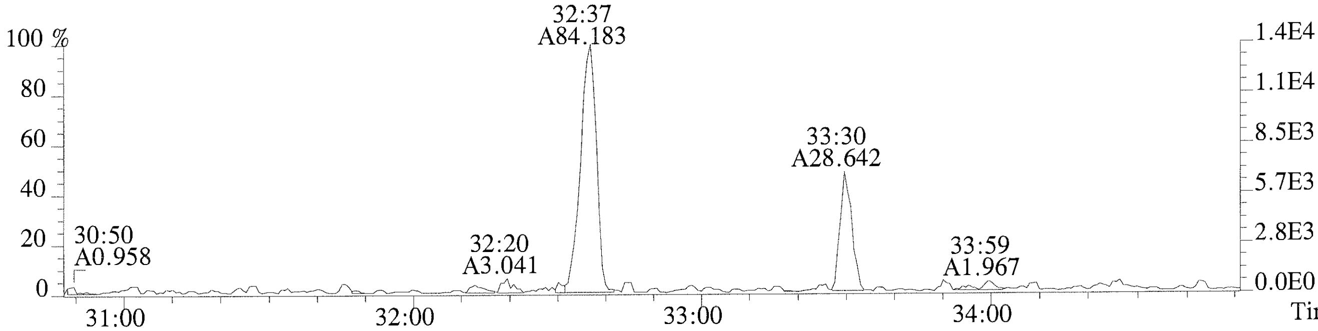
File:P174008 #1-788 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



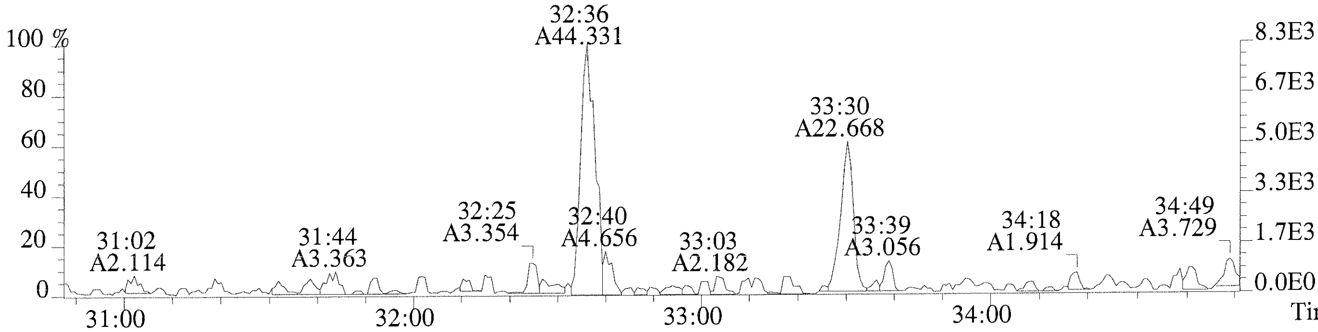
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



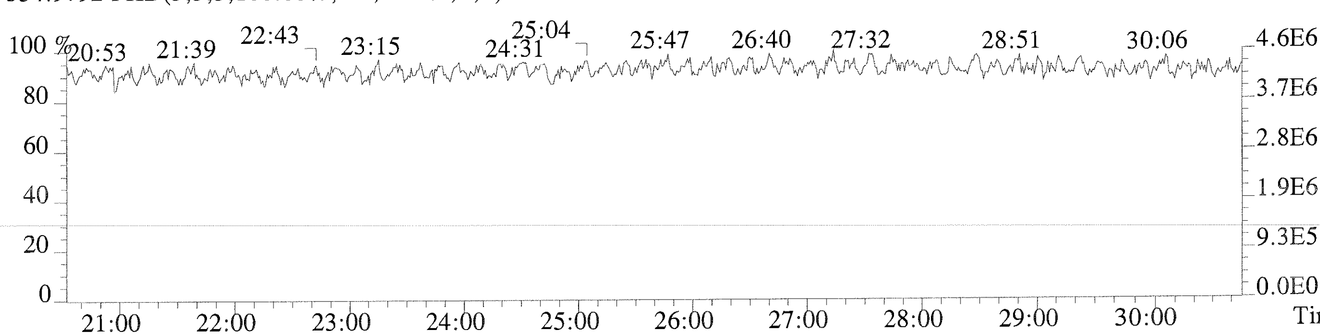
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



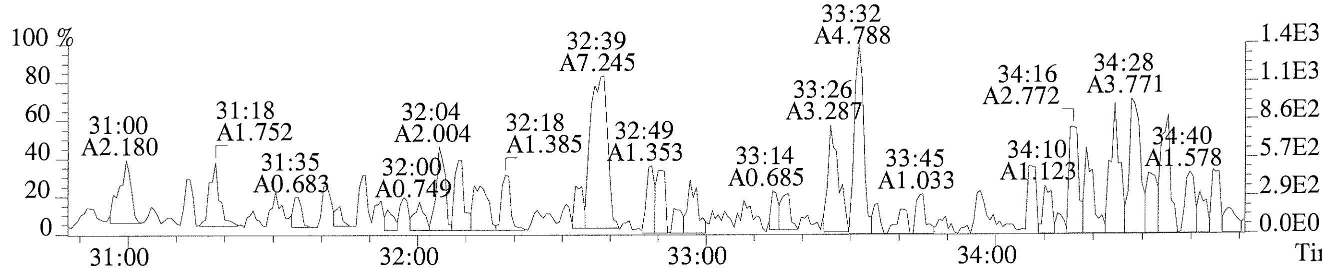
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



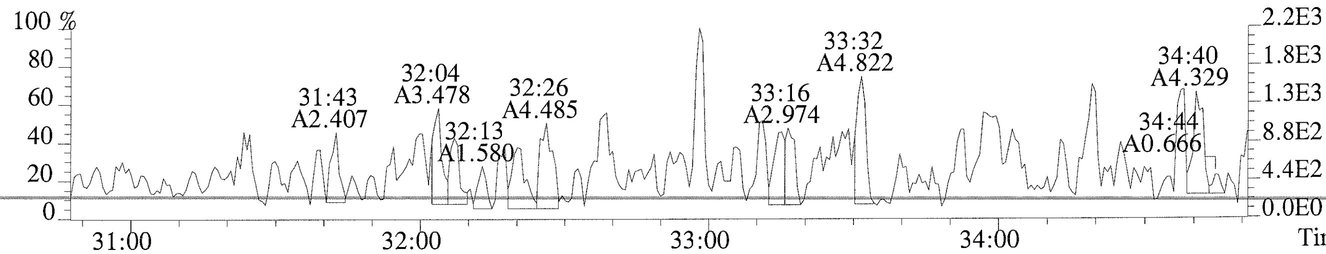
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



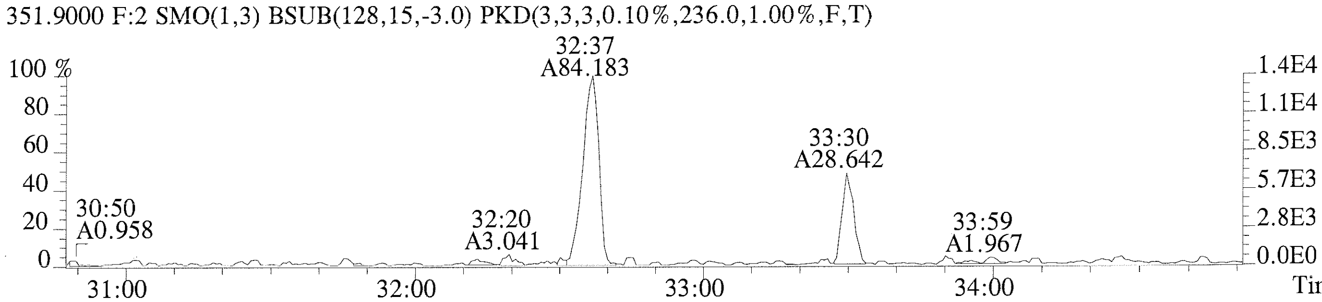
File:P174008 #1-369 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



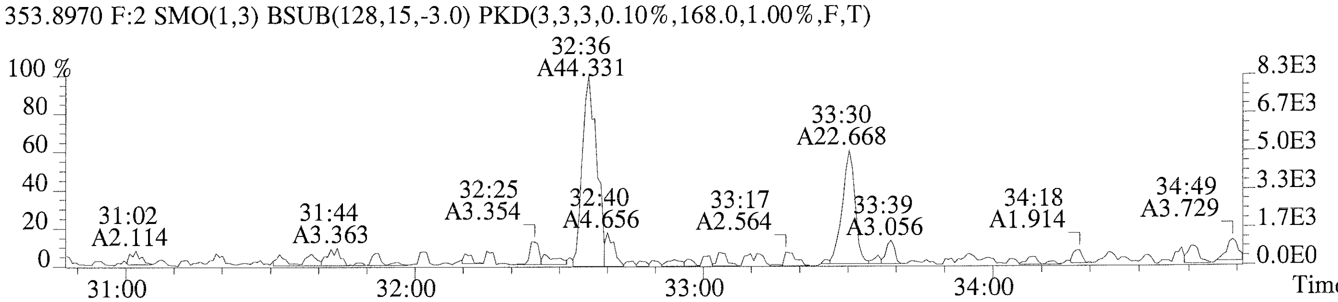
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



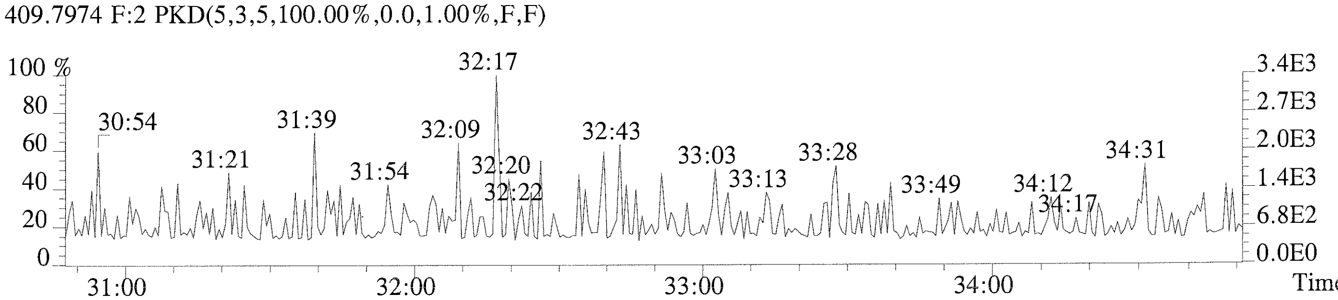
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



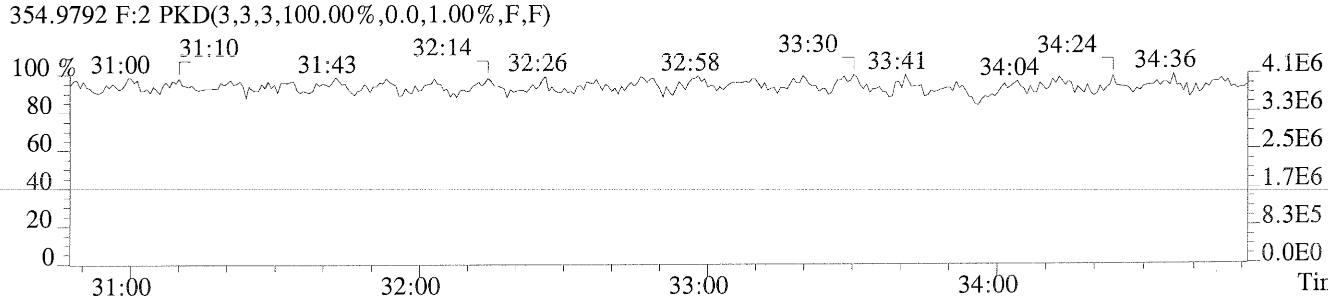
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



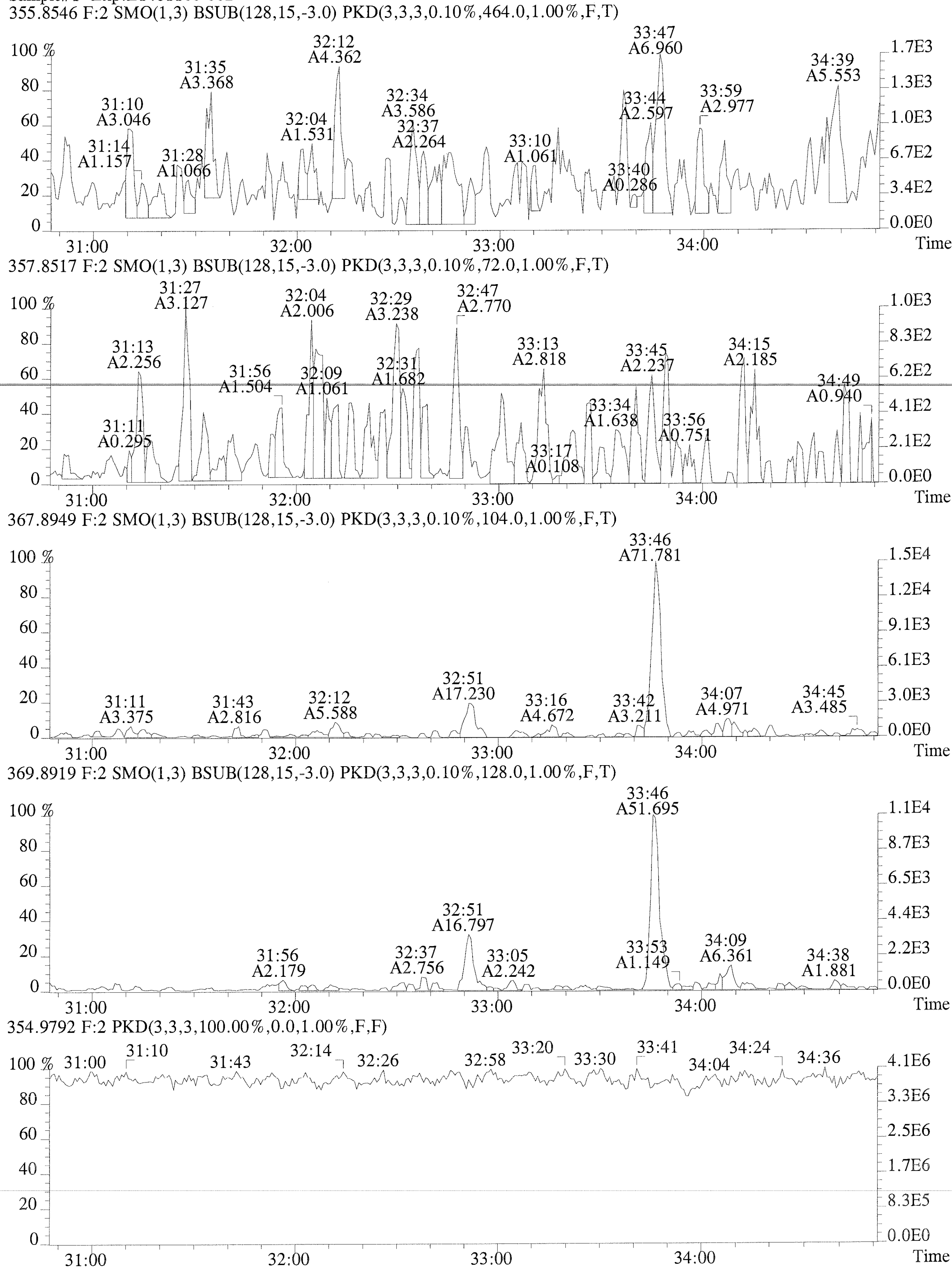
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



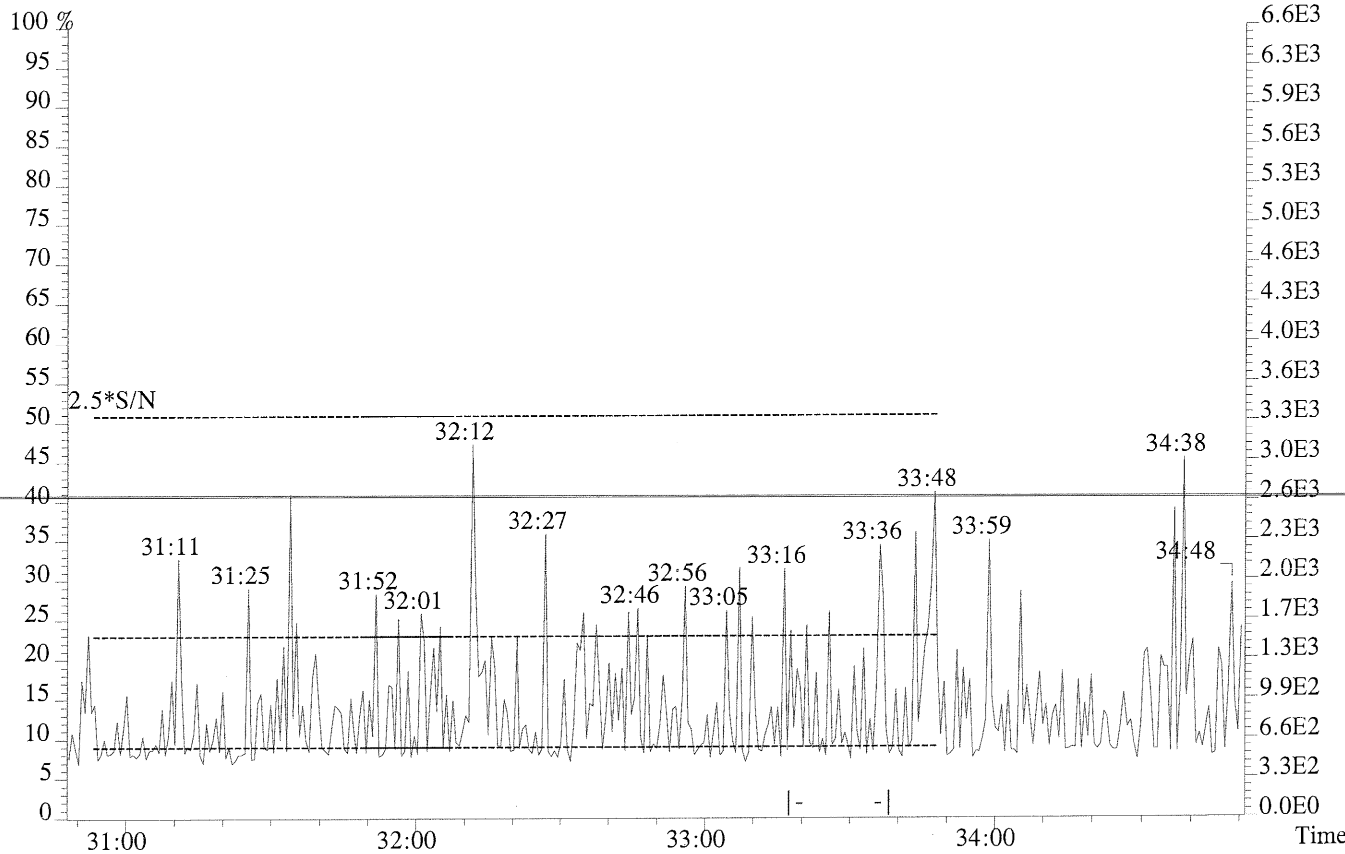
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



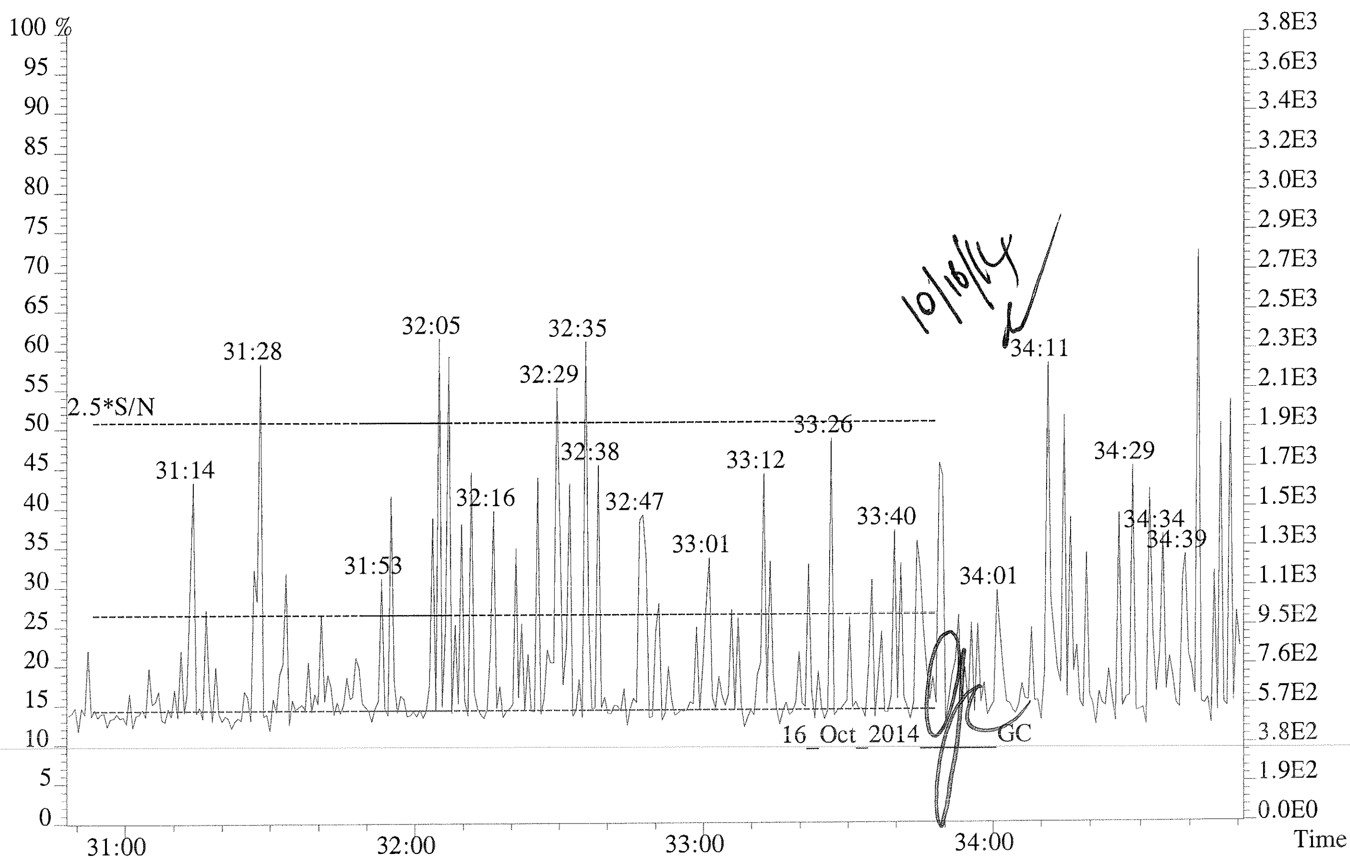
File:P174008 #1-369 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002



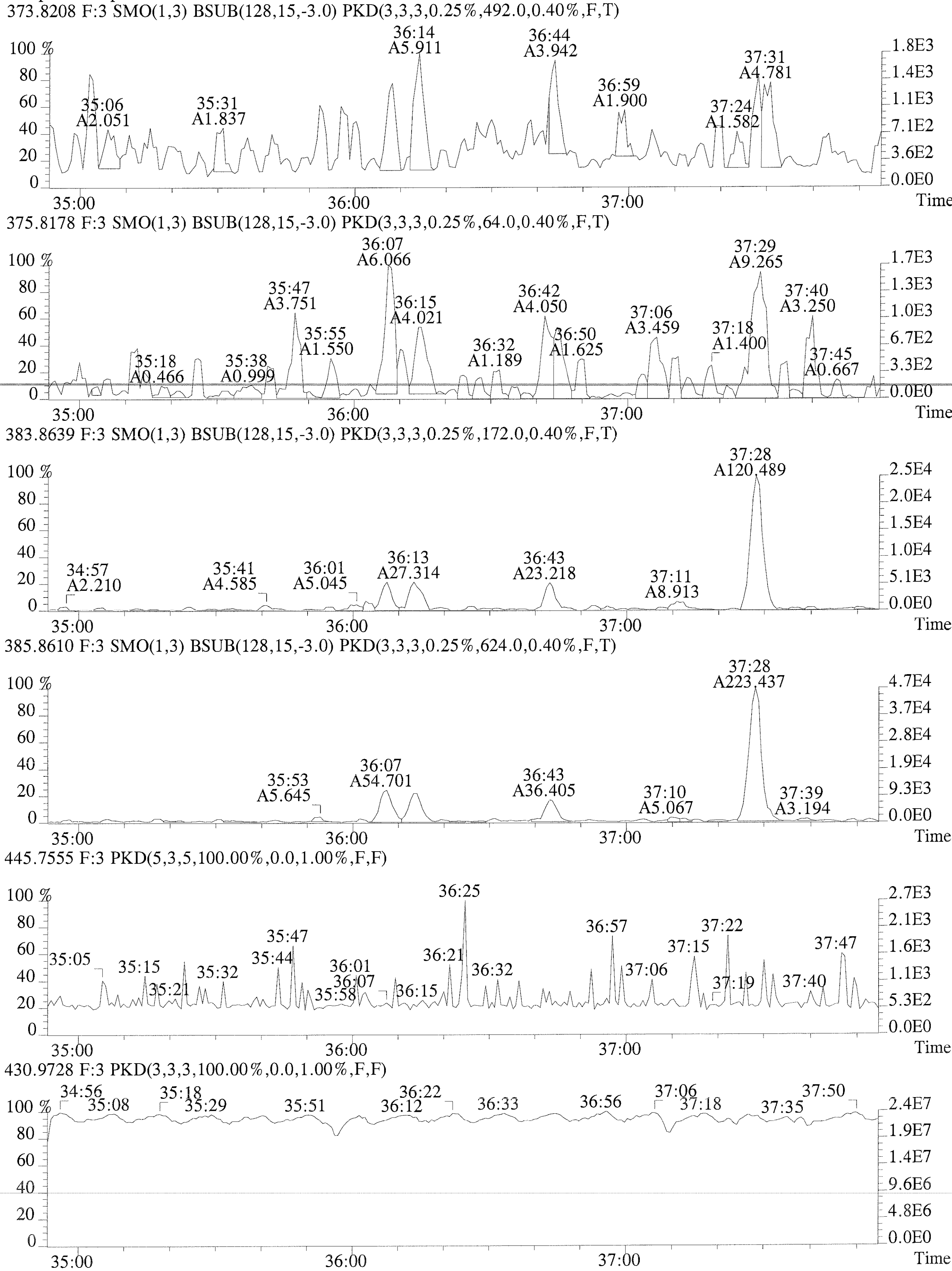
File:P174008 #1-369 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
355.8546 F:2



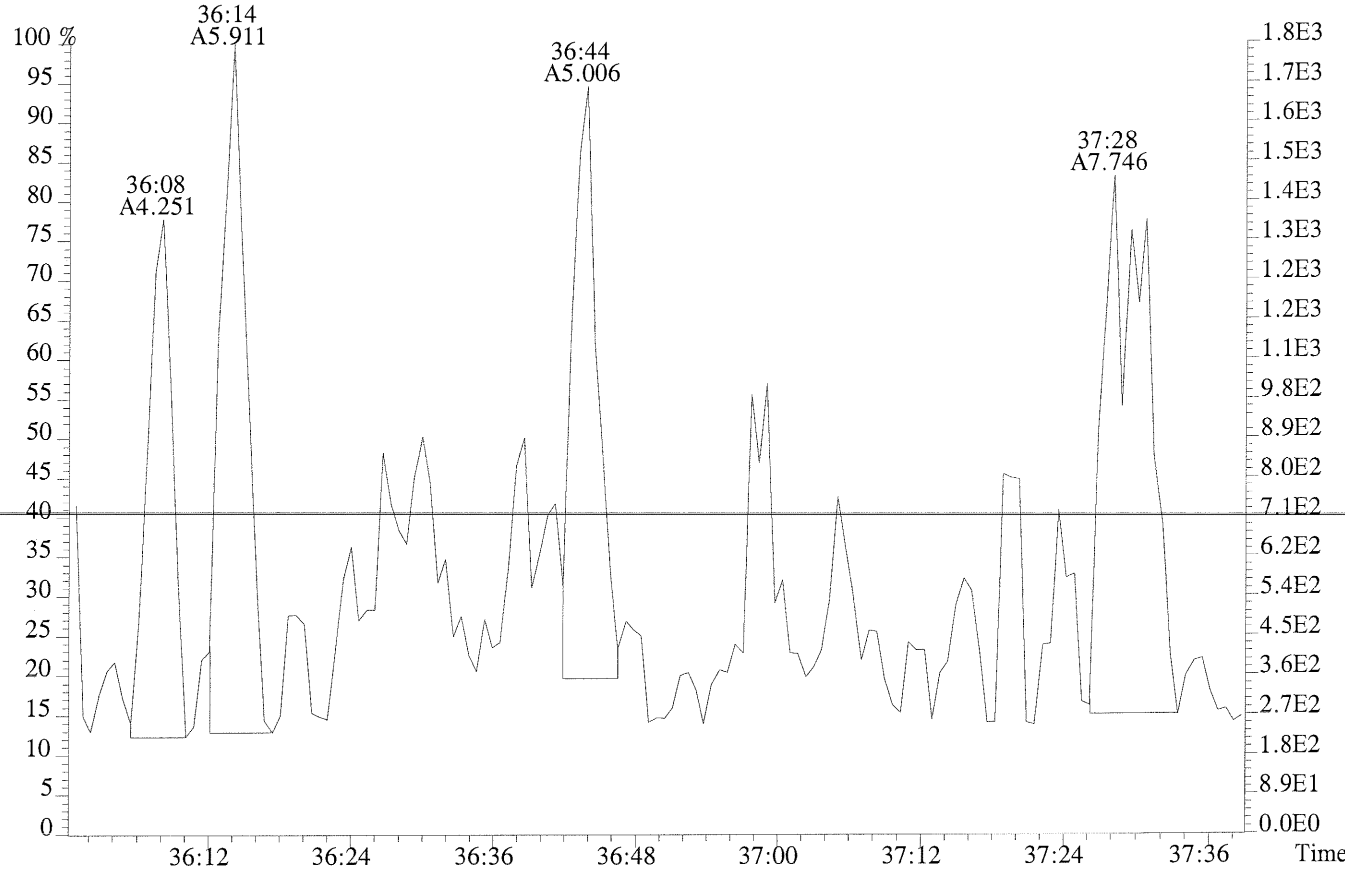
357.8517 F:2



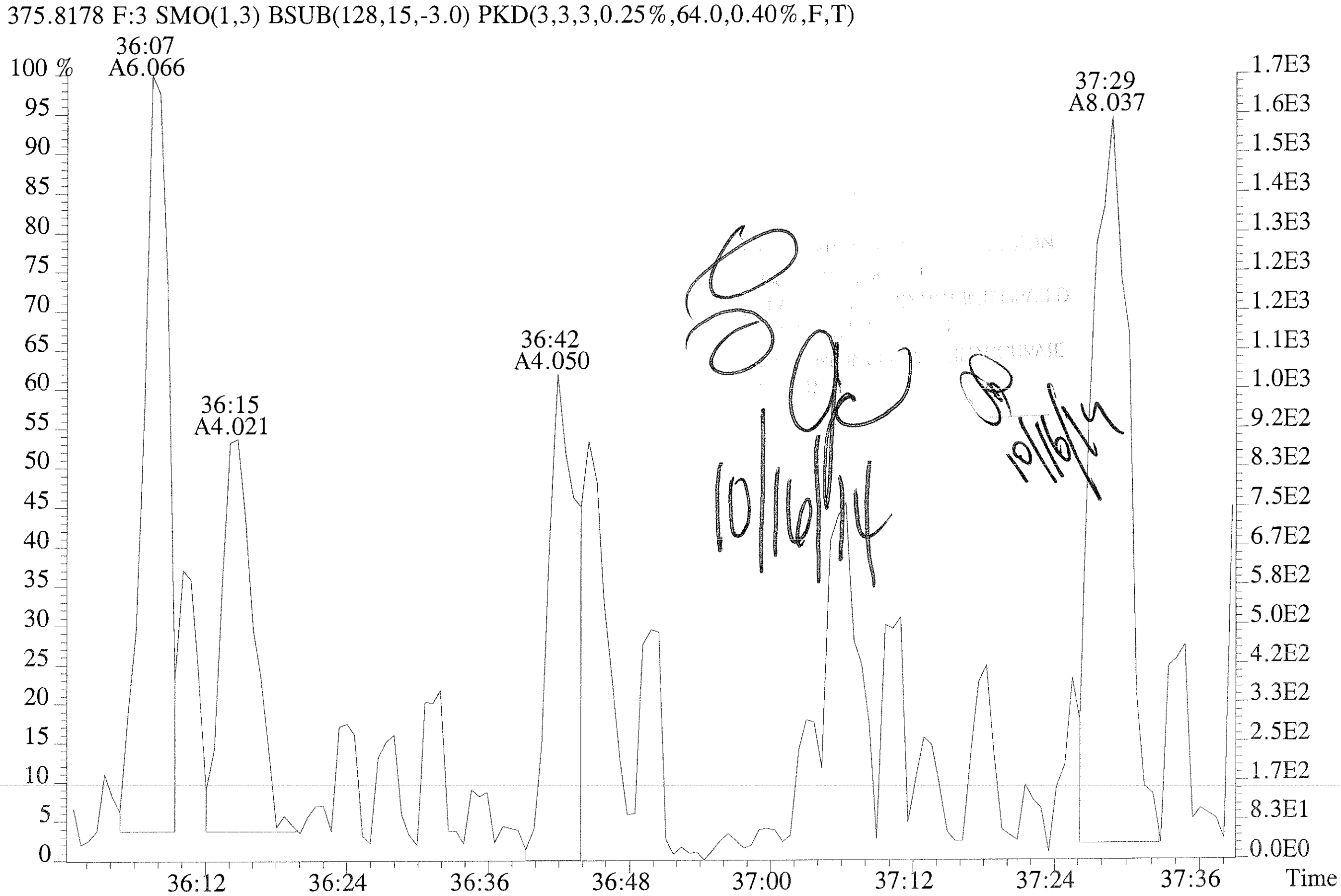
File:P174008 #1-275 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002



File:P174008 #1-275 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



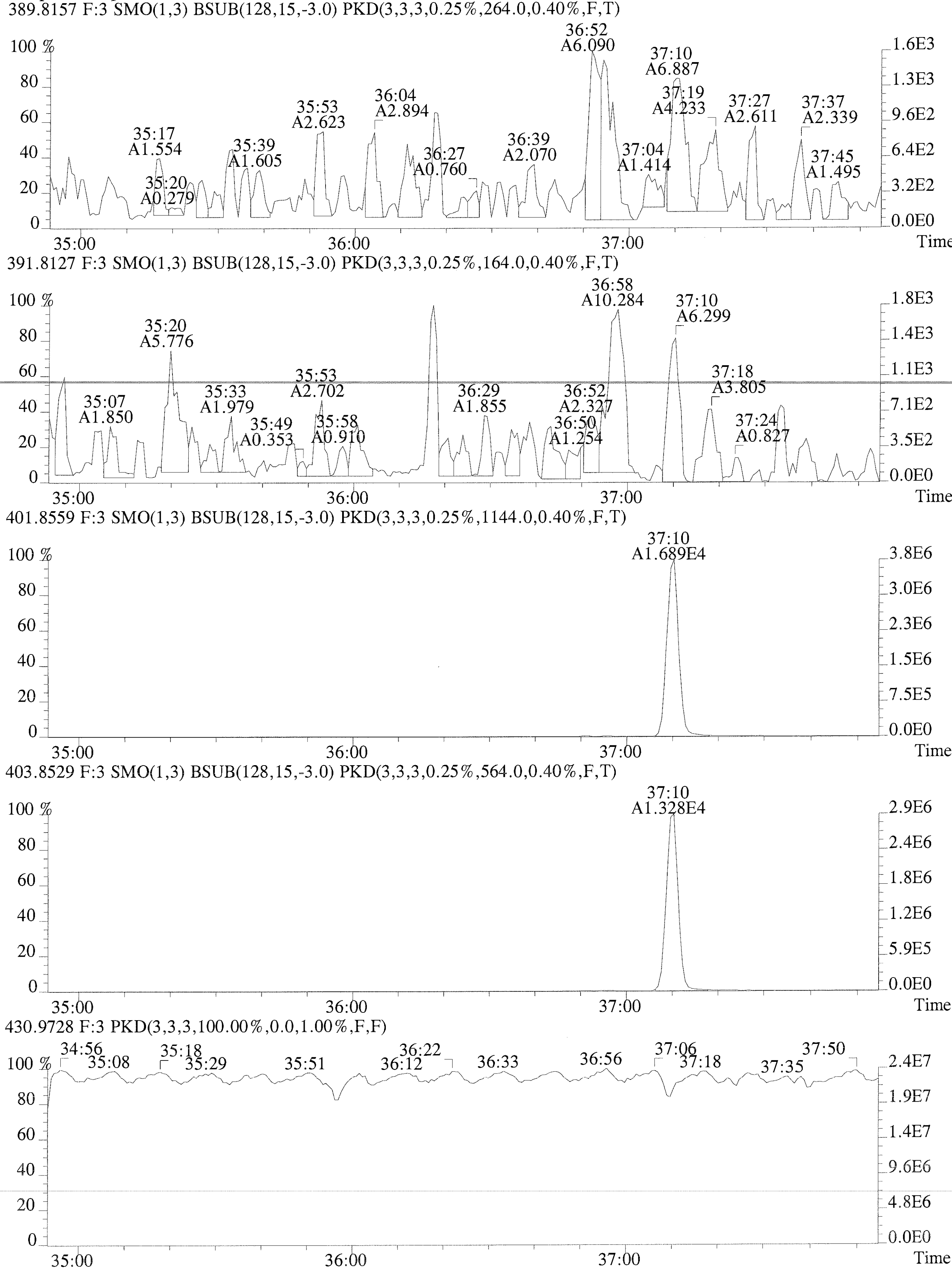
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,64.0,0.40%,F,T)



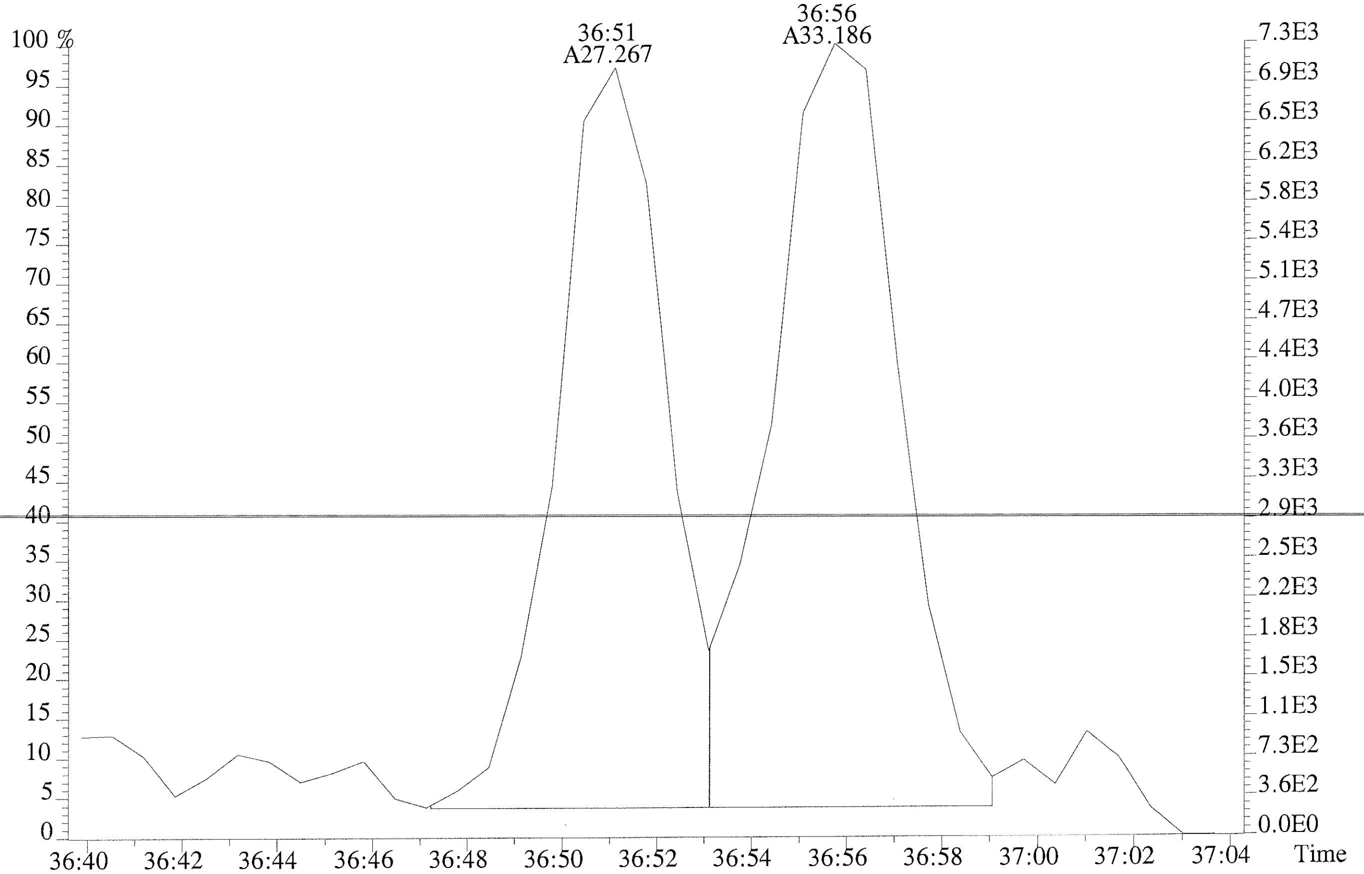
10/16/14

10/16/14

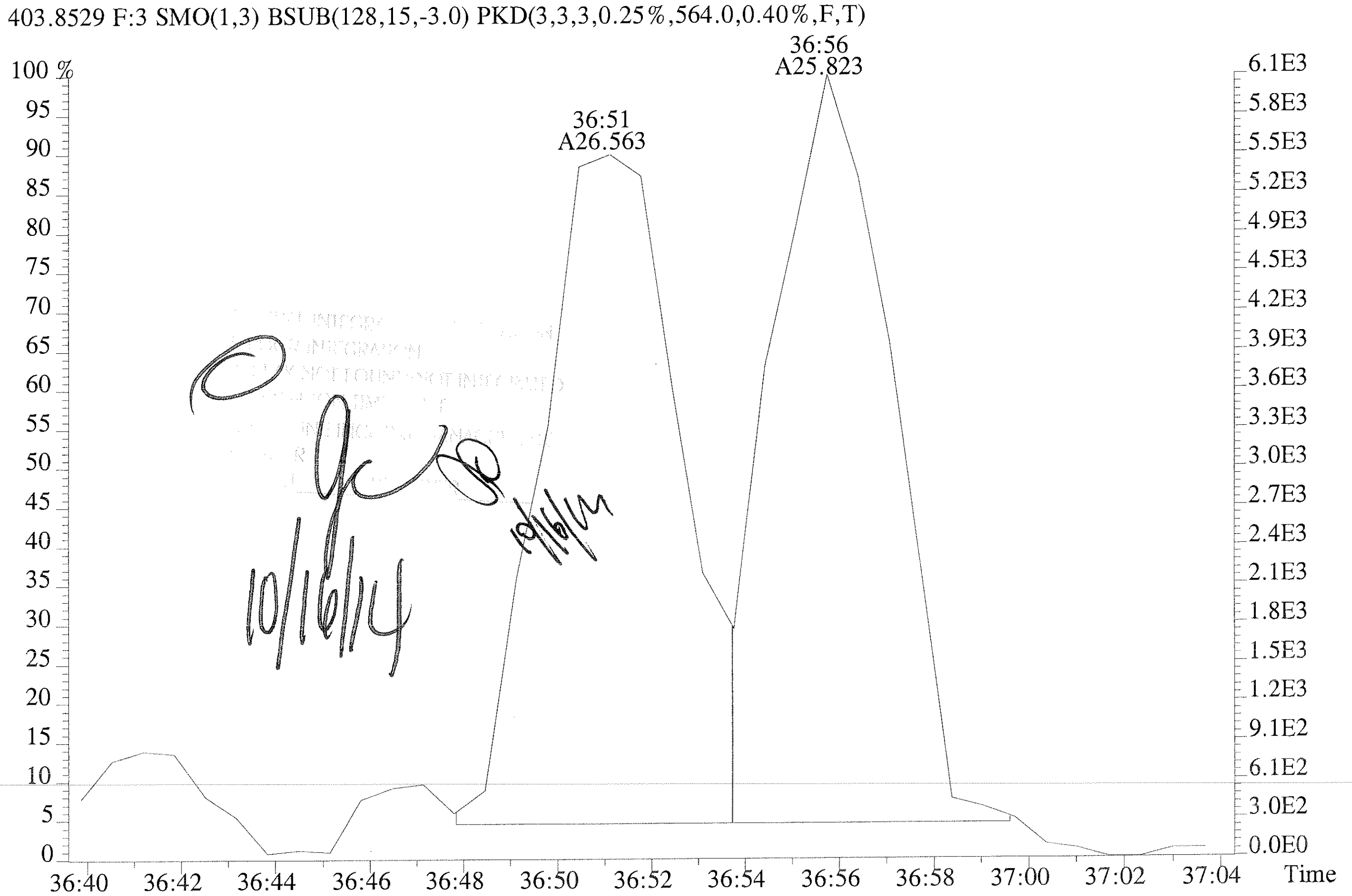
File:P174008 #1-275 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002



File:P174008 #1-275 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

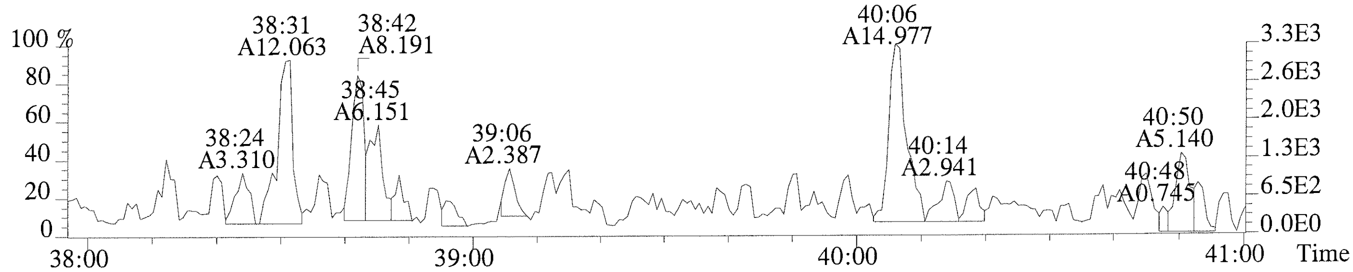


10/16/14

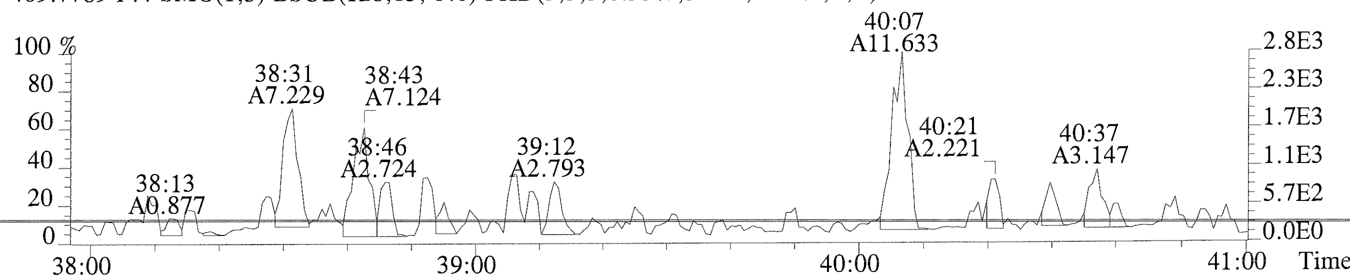
10/16/14

File:P174008 #1-278 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002

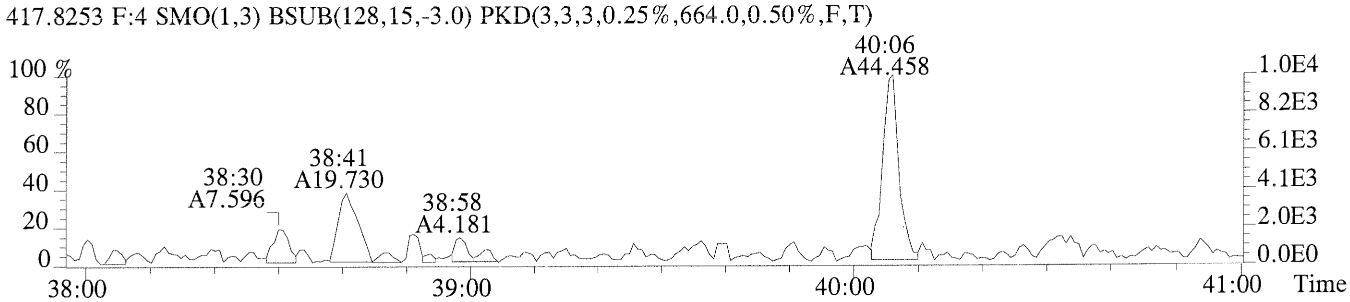
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.50%,F,T)



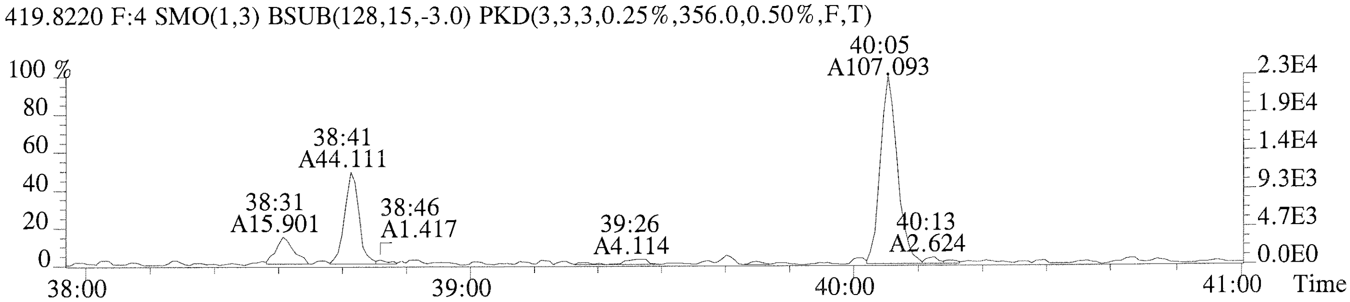
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.50%,F,T)



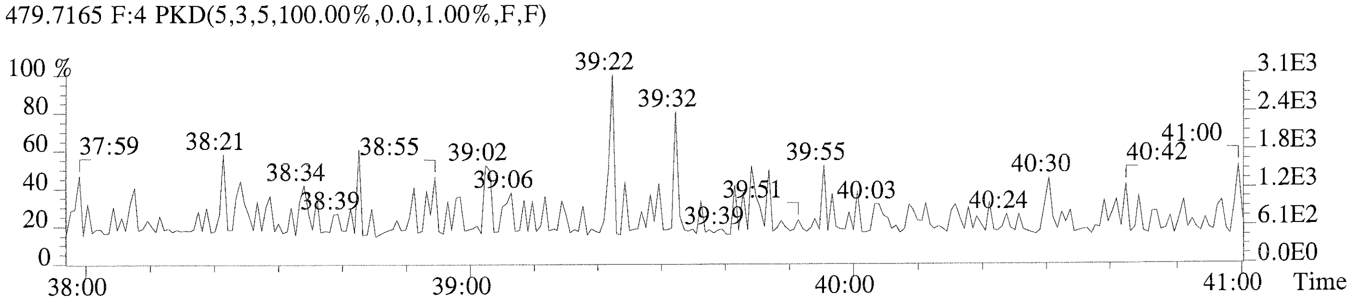
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



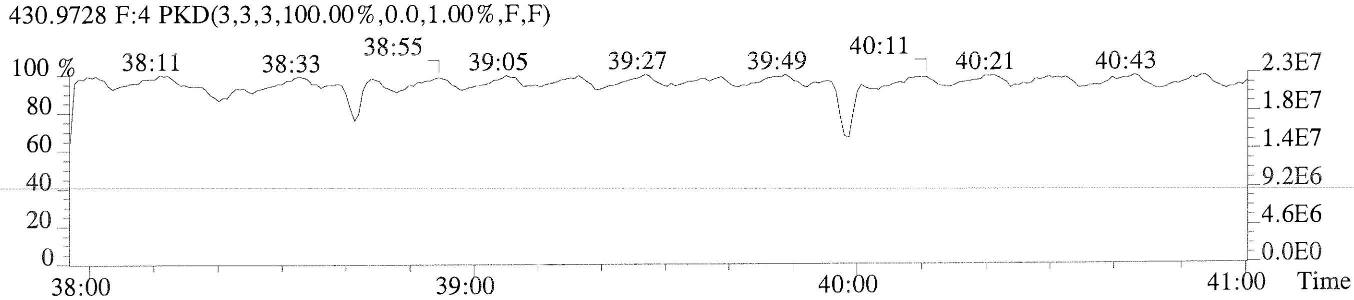
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

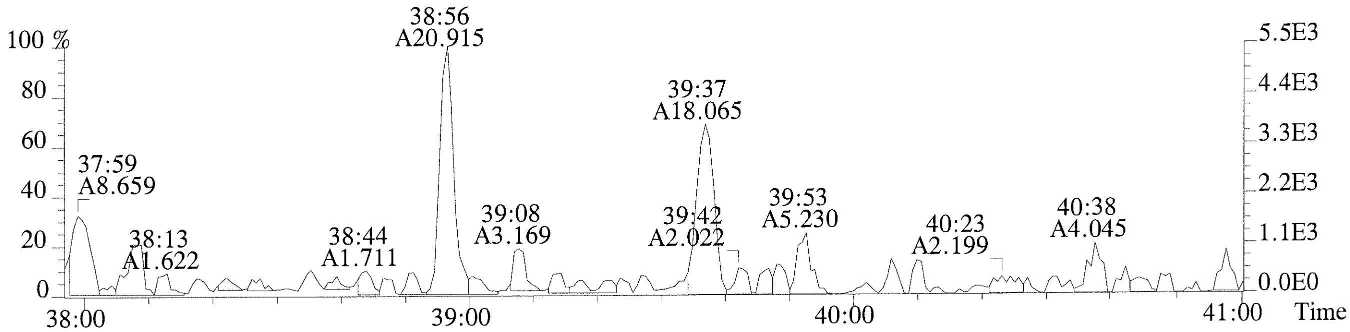


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

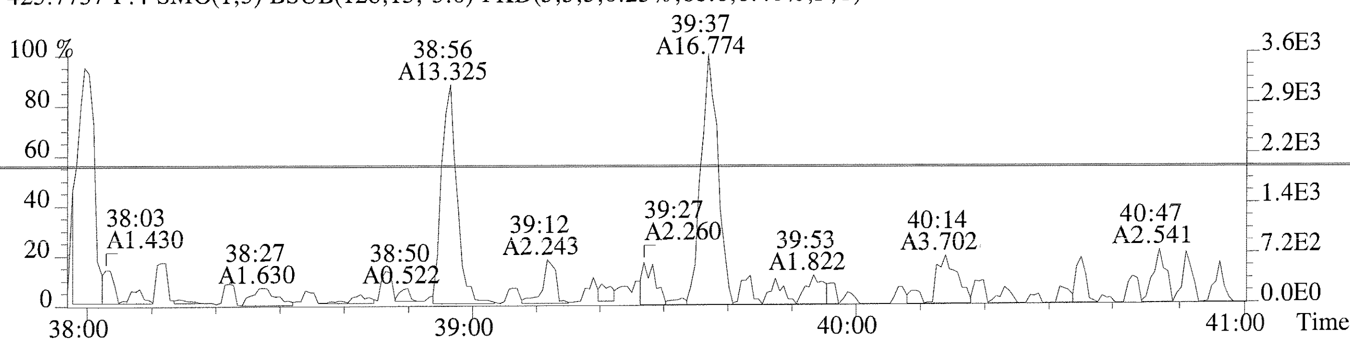


File:P174008 #1-278 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002

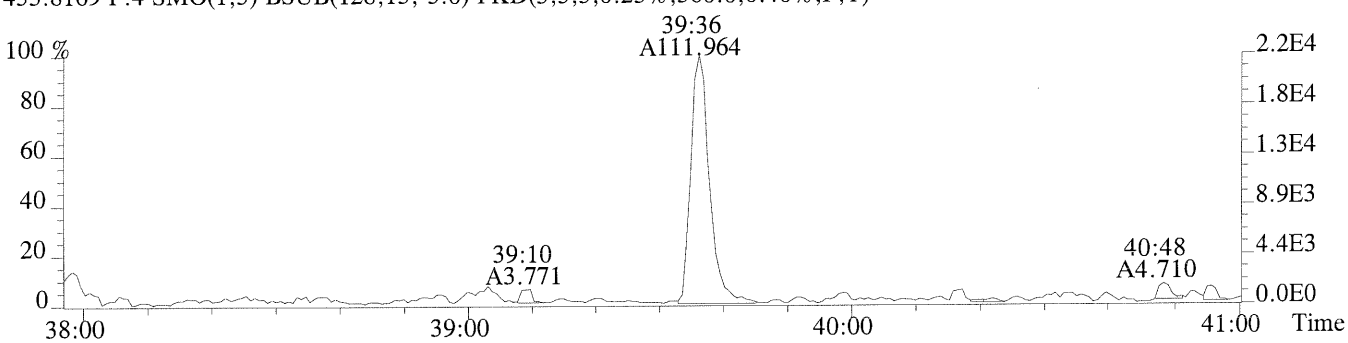
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



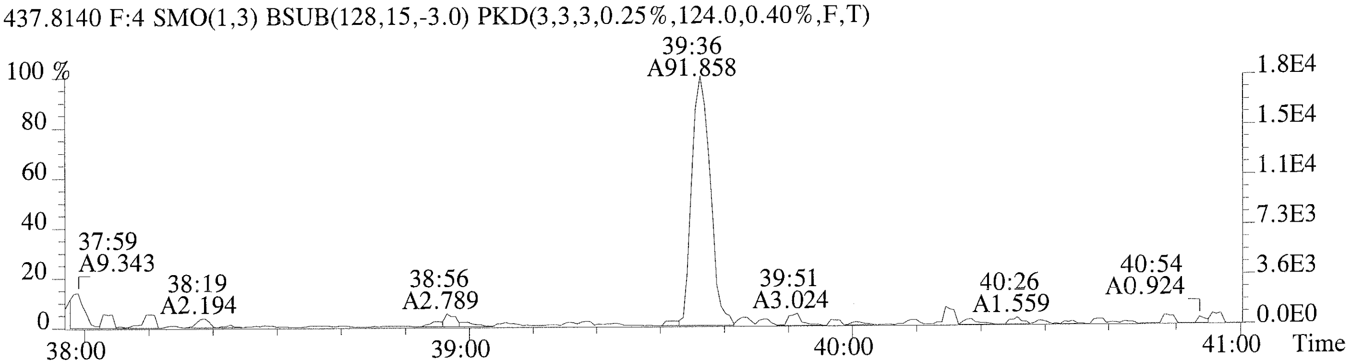
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.40%,F,T)



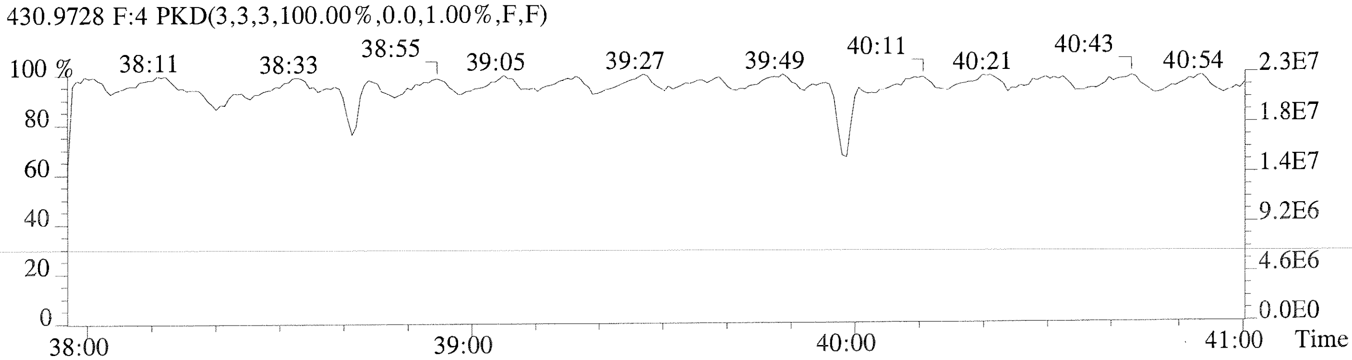
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



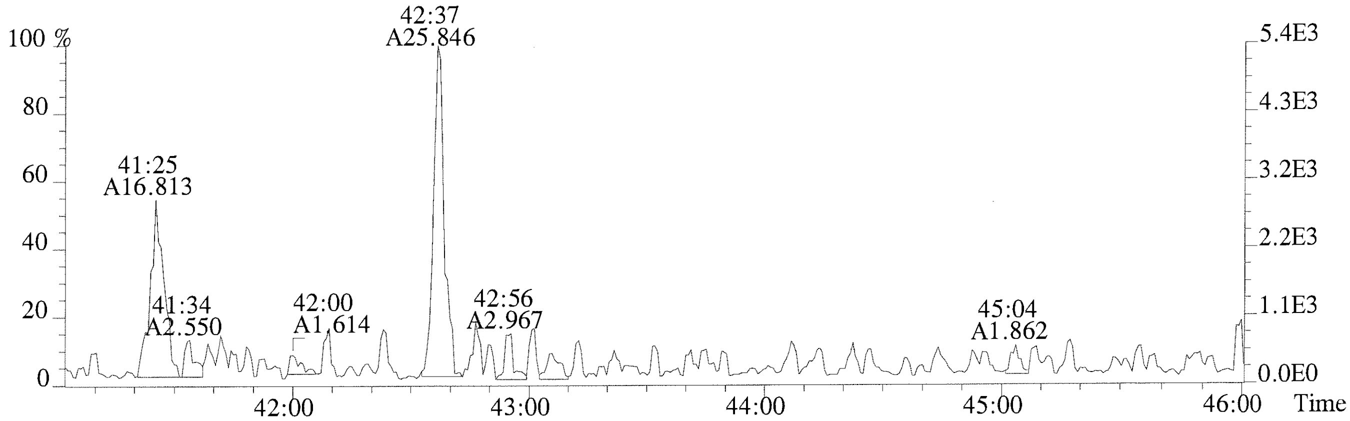
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,124.0,0.40%,F,T)



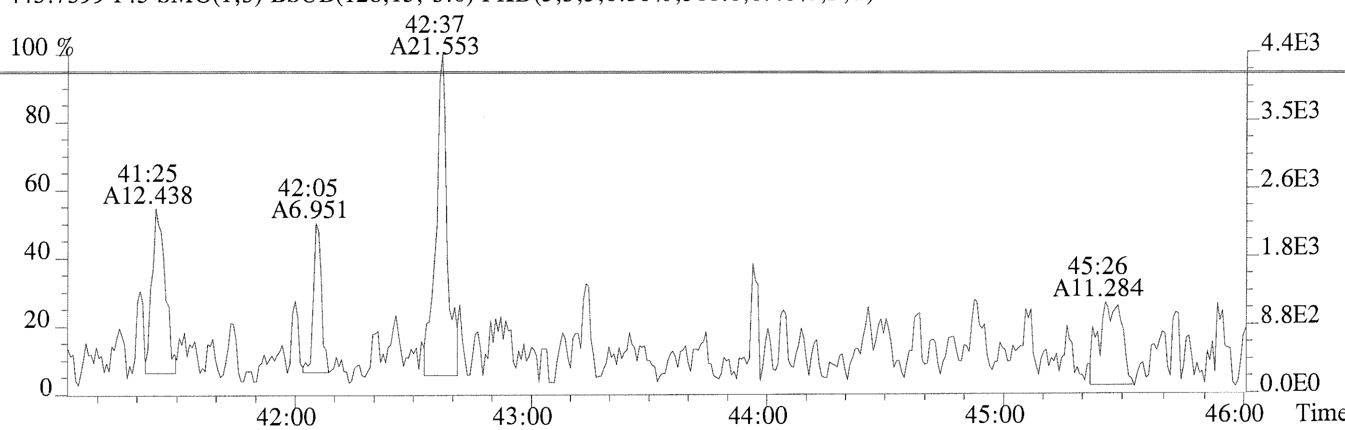
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



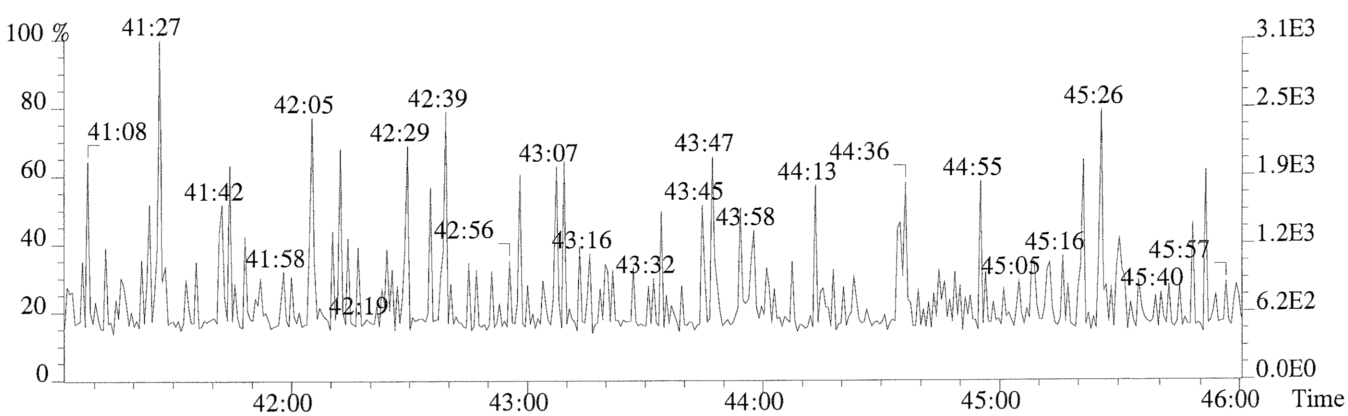
File:P174008 #1-457 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



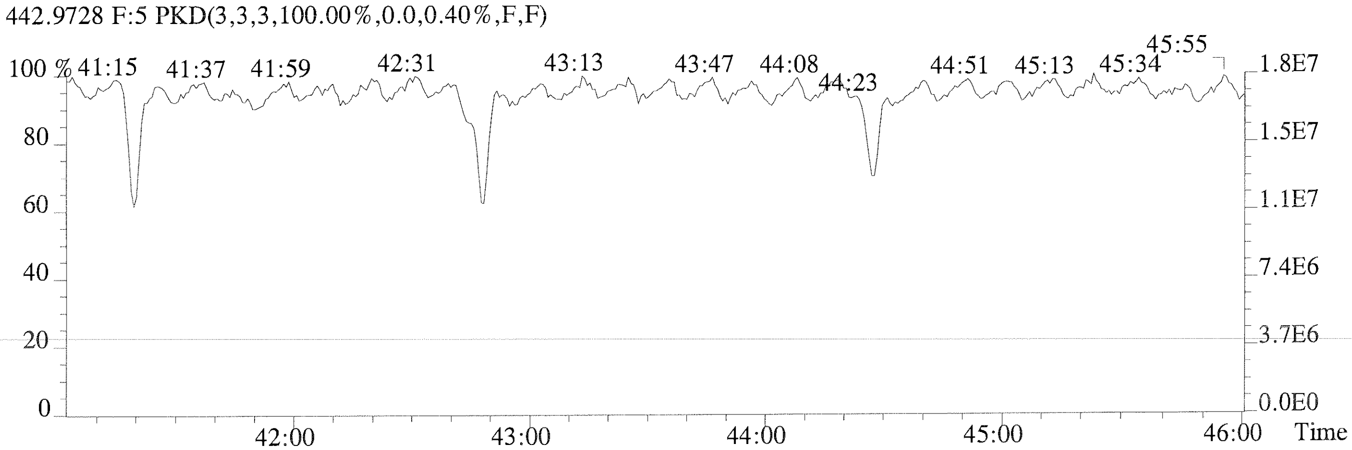
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

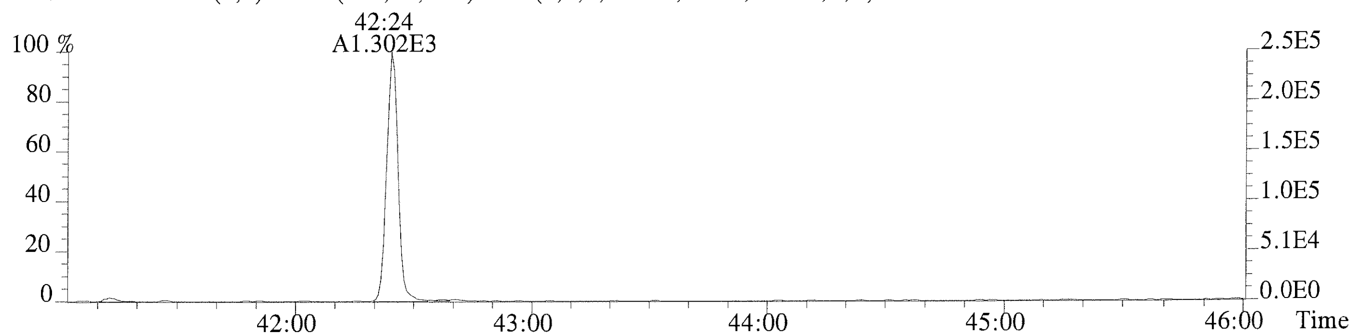


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

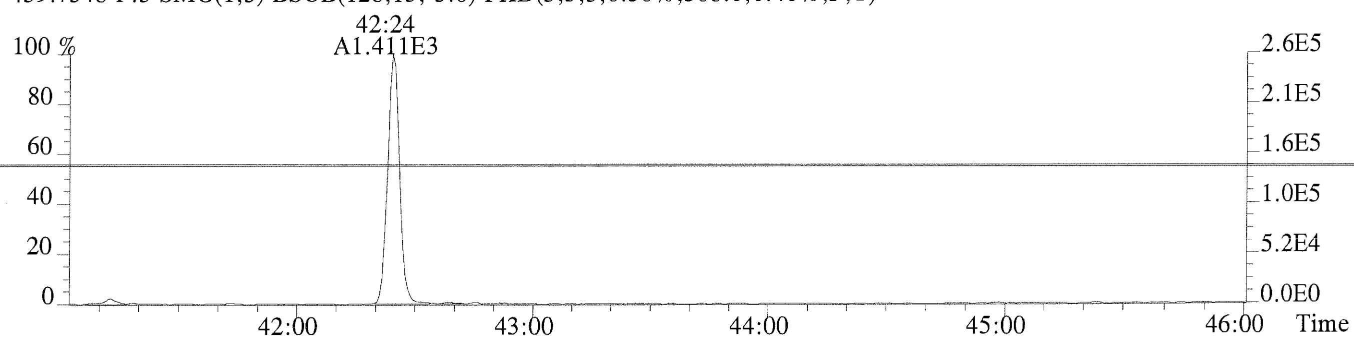


File:P174008 #1-457 Acq:10-OCT-2014 12:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1401160-002

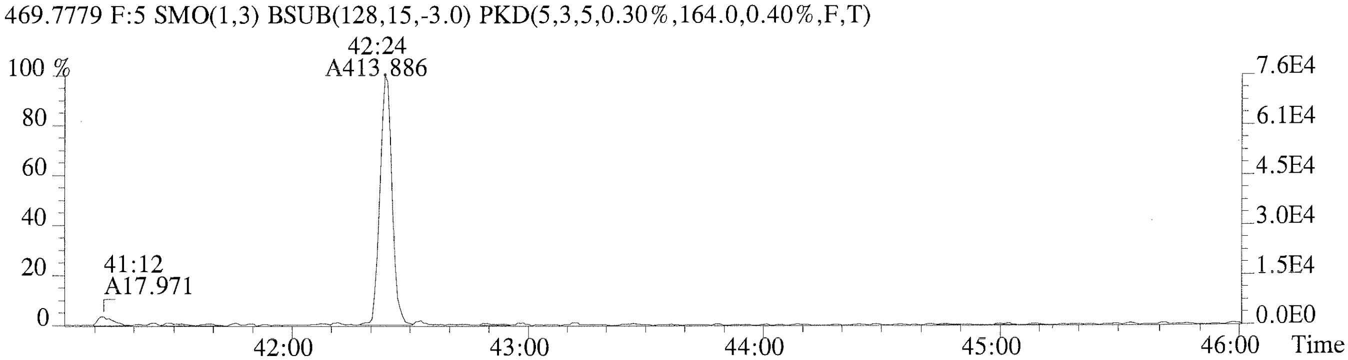
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



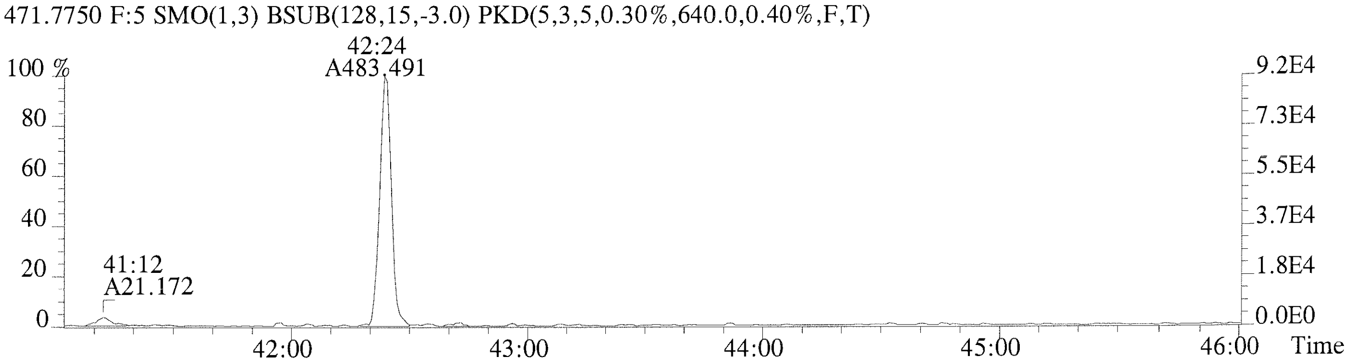
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



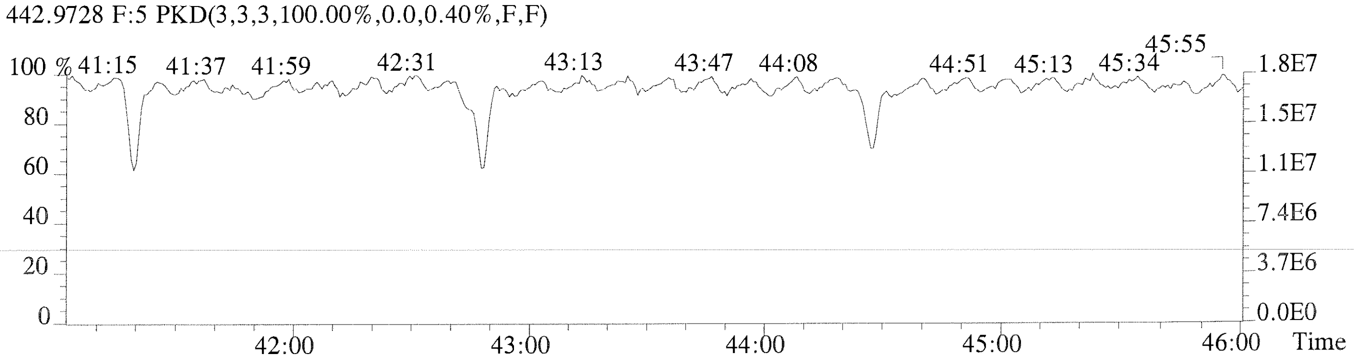
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
METHOD BLANK

Run #8 Filename P231791 Samp: 1 Inj: 1 Acquired: 7-OCT-14 13:12:02
Processed: 8-OCT-14 07:06:37 Sample ID: EQ1400606-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	9.914e+01	1.041e+02	0.95	no	no	0.986
2	Unk	1,2,3,7,8-PeCDF	31:21	2.009e+02	1.188e+02	1.69	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:20	1.108e+02	6.385e+01	1.74	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:07	2.484e+02	1.975e+02	1.26	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:13	1.086e+02	1.091e+02	1.00	no	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:45	7.913e+01	8.566e+01	0.92	no	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:31	1.015e+02	6.741e+01	1.51	no	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:48	1.560e+02	1.378e+02	1.13	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:09	1.049e+02	8.009e+01	1.31	no	no	1.274
10	Unk	OCDF	41:31	1.594e+02	2.160e+02	0.74	no	yes	1.195
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.061
12	Unk	1,2,3,7,8-PeCDD	32:37	5.615e+01	1.906e+01	2.95	no	yes	0.992
13	Unk	1,2,3,4,7,8-HxCDD	35:53	3.780e+01	3.639e+01	1.04	no	yes	1.118
14	Unk	1,2,3,6,7,8-HxCDD	35:59	3.730e+01	4.589e+01	0.81	no	yes	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:12	5.381e+01	5.593e+01	0.96	no	yes	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:42	7.349e+01	6.580e+01	1.12	yes	yes	1.053
17	Unk	OCDD	41:20	1.789e+02	1.933e+02	0.93	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	26:45	3.168e+04	3.897e+04	0.81	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:20	5.082e+04	3.199e+04	1.59	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:19	5.144e+04	3.205e+04	1.60	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:06	2.278e+04	4.386e+04	0.52	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:13	2.855e+04	5.530e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:45	2.384e+04	4.592e+04	0.52	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:30	2.054e+04	3.881e+04	0.53	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:47	1.525e+04	3.405e+04	0.45	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:09	1.350e+04	3.033e+04	0.45	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:37	2.212e+04	2.831e+04	0.78	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:36	3.695e+04	2.326e+04	1.59	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	35:53	3.125e+04	2.473e+04	1.26	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	35:58	2.990e+04	2.352e+04	1.27	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:41	2.683e+04	2.522e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	41:19	3.221e+04	3.538e+04	0.91	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	26:58	4.278e+04	5.383e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:12	5.375e+04	4.182e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:39	2.166e+04				no	1.099

$$\text{OCDD} = \frac{(1.789e+02 + 1.933e+02)\ \times 4000\ \text{pg} \times 1}{(3.221e+04 + 3.538e+04)\ \times \quad \times \quad \times 1.169} =$$

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1613RESP1

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
METHOD BLANK

Run #8 Filename P231791 Samp: 1 Inj: 1 Acquired: 7-OCT-14 13:12:02
Processed: 8-OCT-14 07:06:371 LAB. ID: EQ1400606-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.53e+04	8.12e+02	1.9e+01	1.69e+04	2.81e+03	6.0e+00
2	1,2,3,7,8-PeCDF	3.08e+04	4.08e+02	7.6e+01	2.00e+04	1.86e+03	1.1e+01
3	2,3,4,7,8-PeCDF	2.07e+04	4.08e+02	5.1e+01	1.08e+04	1.86e+03	5.8e+00
4	1,2,3,4,7,8-HxCDF	5.27e+04	1.53e+03	3.4e+01	3.83e+04	3.08e+02	1.2e+02
5	1,2,3,6,7,8-HxCDF	2.39e+04	1.53e+03	1.6e+01	2.26e+04	3.08e+02	7.3e+01
6	2,3,4,6,7,8-HxCDF	1.84e+04	1.53e+03	1.2e+01	1.63e+04	3.08e+02	5.3e+01
7	1,2,3,7,8,9-HxCDF	1.83e+04	1.53e+03	1.2e+01	1.33e+04	3.08e+02	4.3e+01
8	1,2,3,4,6,7,8-HpCDF	3.13e+04	4.24e+02	7.4e+01	3.09e+04	7.04e+02	4.4e+01
9	1,2,3,4,7,8,9-HpCDF	1.89e+04	4.24e+02	4.5e+01	1.90e+04	7.04e+02	2.7e+01
10	OCDF	2.53e+04	1.25e+03	2.0e+01	3.53e+04	3.04e+03	1.2e+01
~~11~~	~~2,3,7,8-TCDD~~	~~*~~	~~2.04e+03~~	~~*~~	~~*~~	~~1.19e+03~~	~~*~~
12	1,2,3,7,8-PeCDD	9.03e+03	1.73e+03	5.2e+00	3.52e+03	6.24e+02	5.6e+00
13	1,2,3,4,7,8-HxCDD	6.48e+03	7.12e+02	9.1e+00	8.10e+03	9.76e+02	8.3e+00
14	1,2,3,6,7,8-HxCDD	9.23e+03	7.12e+02	1.3e+01	8.75e+03	9.76e+02	9.0e+00
15	1,2,3,7,8,9-HxCDD	1.15e+04	7.12e+02	1.6e+01	1.30e+04	9.76e+02	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.51e+04	8.52e+02	1.8e+01	1.49e+04	4.36e+02	3.4e+01
17	OCDD	2.98e+04	3.48e+02	8.6e+01	3.25e+04	1.22e+03	2.7e+01
18	13C-2,3,7,8-TCDF	5.05e+06	2.30e+03	2.2e+03	6.14e+06	1.36e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	9.28e+06	7.64e+02	1.2e+04	5.84e+06	1.85e+03	3.2e+03
20	13C-2,3,4,7,8-PeCDF	9.85e+06	7.64e+02	1.3e+04	6.14e+06	1.85e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.86e+06	1.18e+03	4.1e+03	9.44e+06	2.02e+03	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	5.86e+06	1.18e+03	5.0e+03	1.13e+07	2.02e+03	5.6e+03
23	13C-2,3,4,6,7,8-HxCDF	5.06e+06	1.18e+03	4.3e+03	9.52e+06	2.02e+03	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.04e+06	1.18e+03	3.4e+03	7.82e+06	2.02e+03	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.41e+06	3.48e+03	9.8e+02	7.50e+06	4.48e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.81e+06	3.48e+03	8.1e+02	6.26e+06	4.48e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.81e+06	7.56e+03	5.0e+02	4.85e+06	3.46e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	7.09e+06	1.48e+03	4.8e+03	4.46e+06	8.28e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	7.01e+06	2.90e+03	2.4e+03	5.45e+06	1.21e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.26e+06	2.90e+03	2.2e+03	4.92e+06	1.21e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.66e+06	1.77e+03	3.2e+03	5.34e+06	4.56e+02	1.2e+04
32	13C-OCDD	5.77e+06	3.69e+03	1.6e+03	6.39e+06	1.73e+03	3.7e+03
33	13C-1,2,3,4-TCDD	6.88e+06	7.56e+03	9.1e+02	8.73e+06	3.46e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.12e+07	2.90e+03	3.9e+03	8.86e+06	1.21e+03	7.3e+03
35	37Cl-2,3,7,8-TCDD	3.63e+06	2.32e+03	1.6e+03			

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Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400606-01
Entry: 39 Totals Name: Total Penta-Furan2

Run: 8 File: P231791 Sample: 1 Injection: 1 Function: 2
Llim: 28:40 Ulim: 33:27
Acquired: 7-OCT-14 13:12:02 Processed: 8-OCT-14 07:06:37
Mass: 339.8600 341.8570 Tot Response: 4.94e+02 RRF: 0.9848

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:21	2.01e+02	1.19e+02	1.69	yes	3.20e+02	1,2,3,7,8-PeCDF	n	n
2	32:20	1.11e+02	6.39e+01	1.74	yes	1.75e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400606-01
Entry: 41 Totals Name: Total Hexa-Furans

Run: 8 File: P231791 Sample: 1 Injection: 1 Function: 3
Llim: 33:53 Ulim: 36:44
Acquired: 7-OCT-14 13:12:02 Processed: 8-OCT-14 07:06:37
Mass: 373.8210 375.8180 Tot Response: 4.46e+02 RRF: 1.140

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:07	2.48e+02	1.97e+02	1.26	yes	4.46e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400606-01
Entry: 43 Totals Name: Total Hepta-Furans

Run: 8 File: P231791 Sample: 1 Injection: 1 Function: 4
Llim: 37:44 Ulim: 39:20
Acquired: 7-OCT-14 13:12:02 Processed: 8-OCT-14 07:06:37
Mass: 407.7820 409.7790 Tot Response: 2.94e+02 RRF: 1.317

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:48	1.56e+02	1.38e+02	1.13	yes	2.94e+02	1,2,3,4,6,7,8-HpCDF	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400606-01
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 8 File: P231791 Sample: 1 Injection: 1 Function: 4
Llim: 37:59 Ulim: 38:53
Acquired: 7-OCT-14 13:12:02 Processed: 8-OCT-14 07:06:37
Mass: 423.7770 425.7740 Tot Response: 1.39e+02 RRF: 1.053

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:42	7.35e+01	6.58e+01	1.12	yes	1.39e+02	1,2,3,4,6,7,8-HpCDD	y	n

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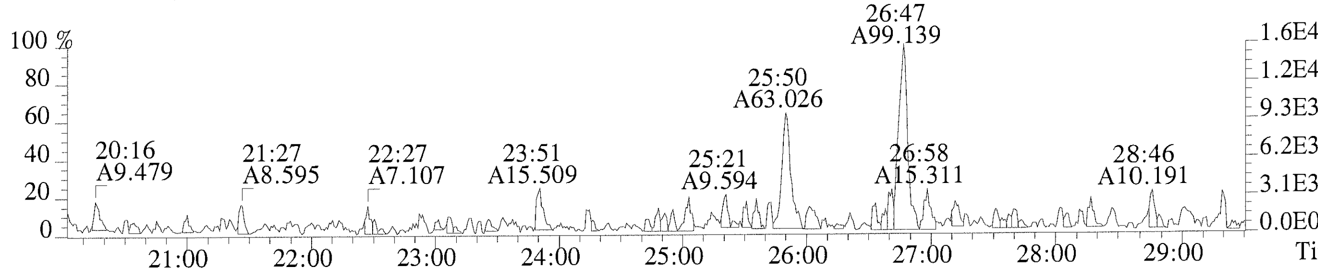
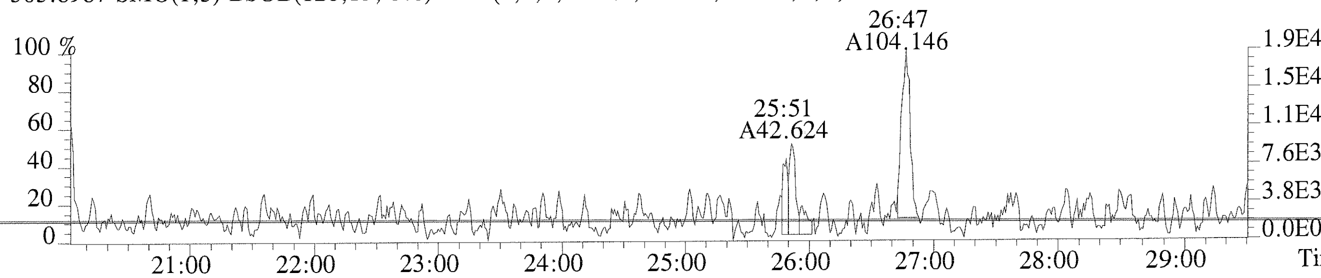
File:P231791 #1-730 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

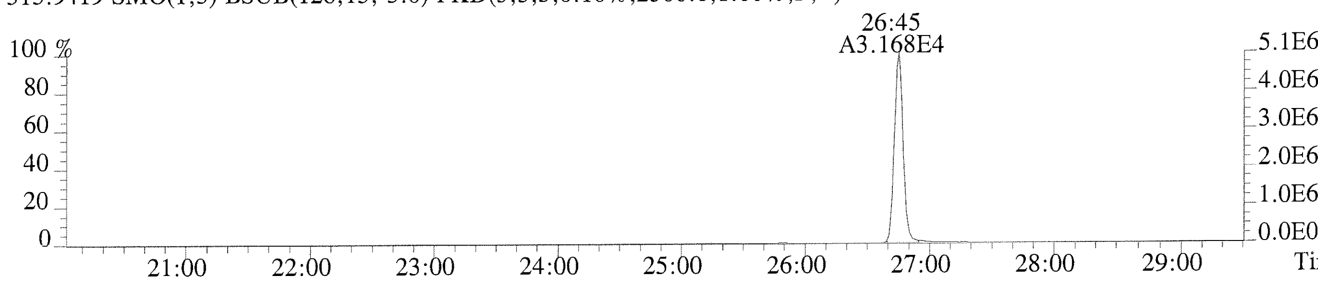
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



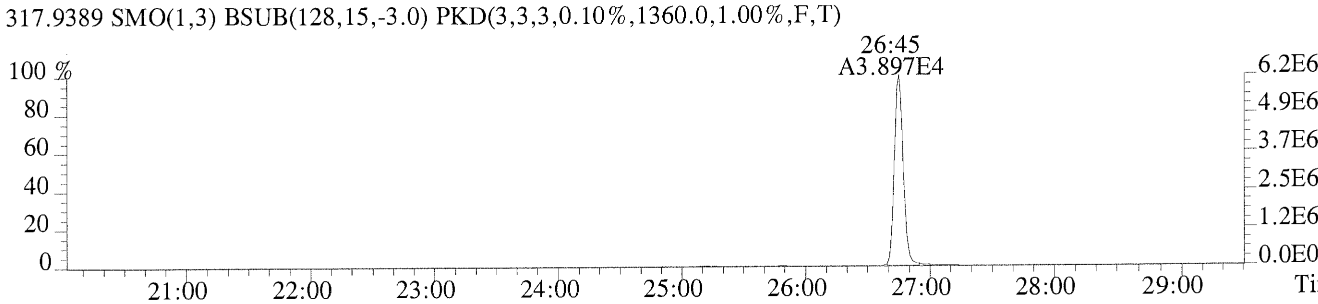
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2808.0,1.00%,F,T)



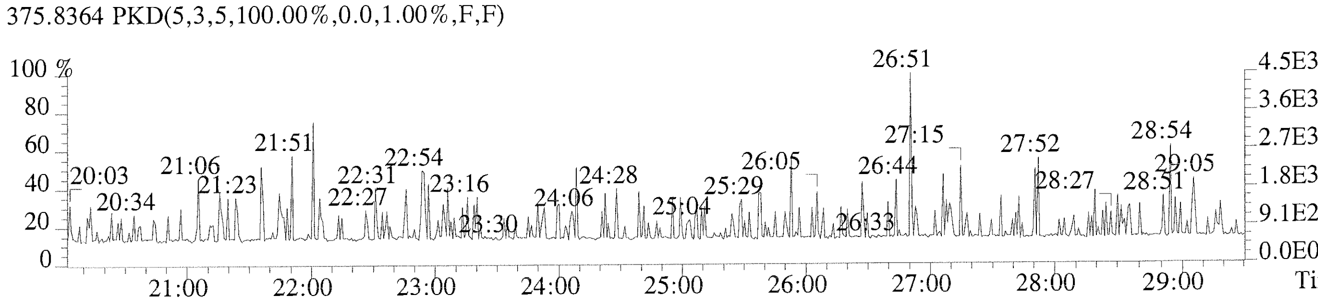
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



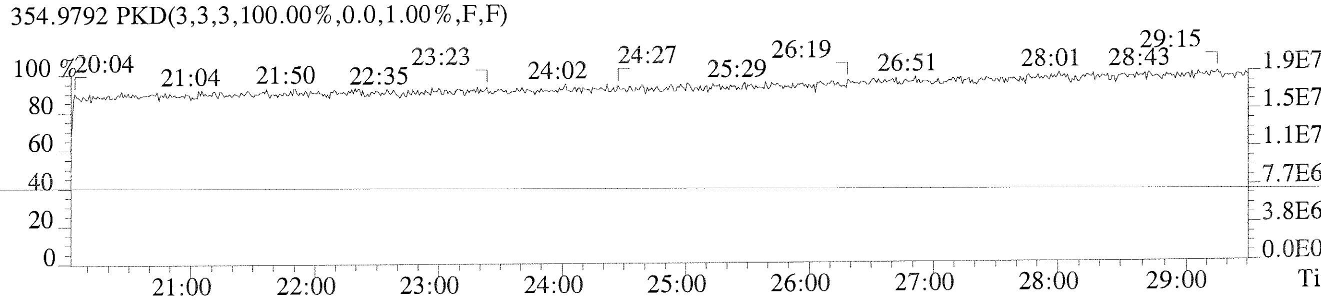
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



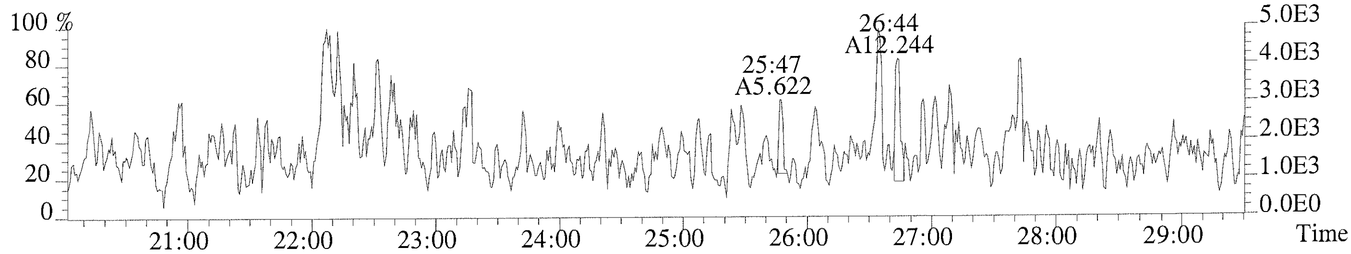
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



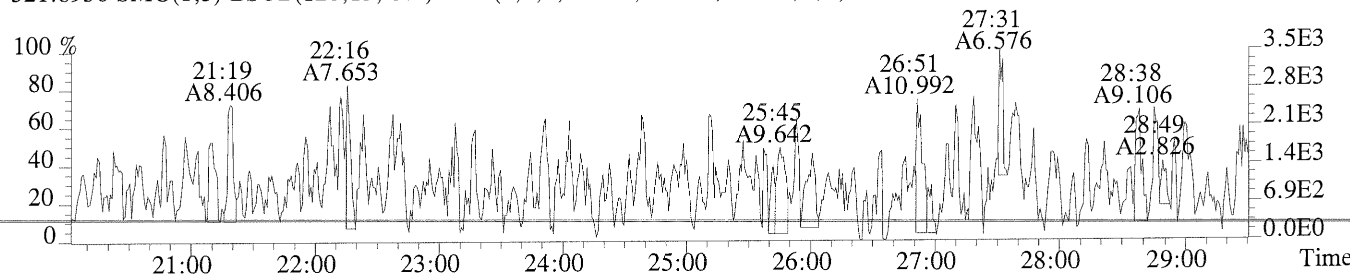
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



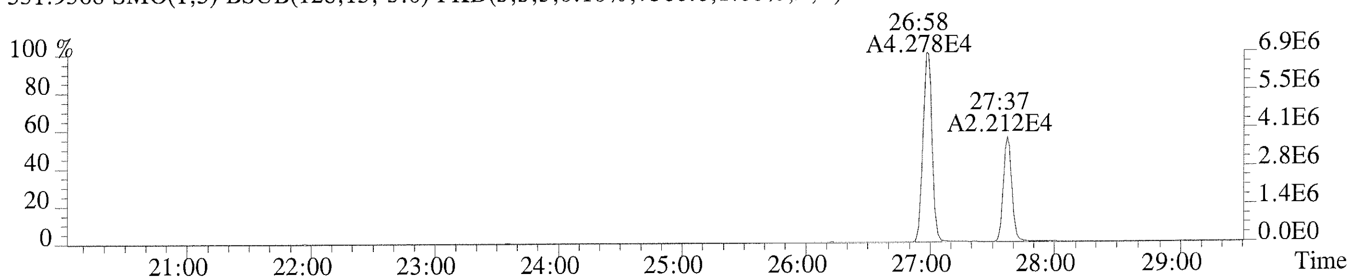
File:P231791 #1-730 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



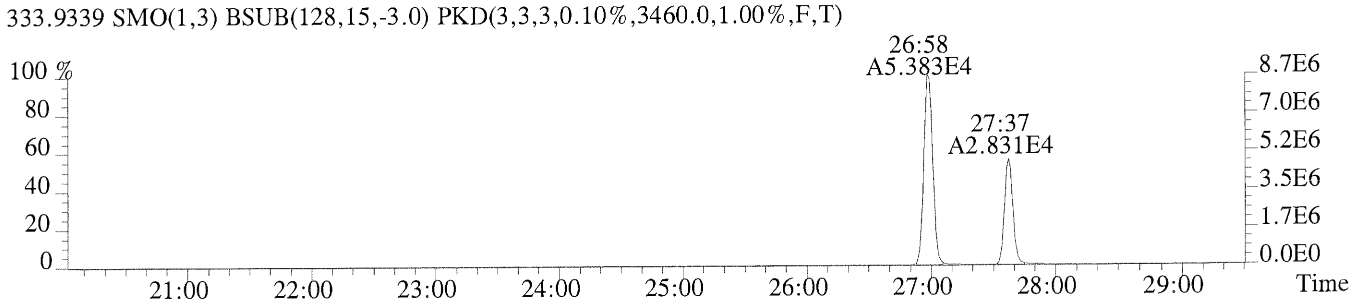
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



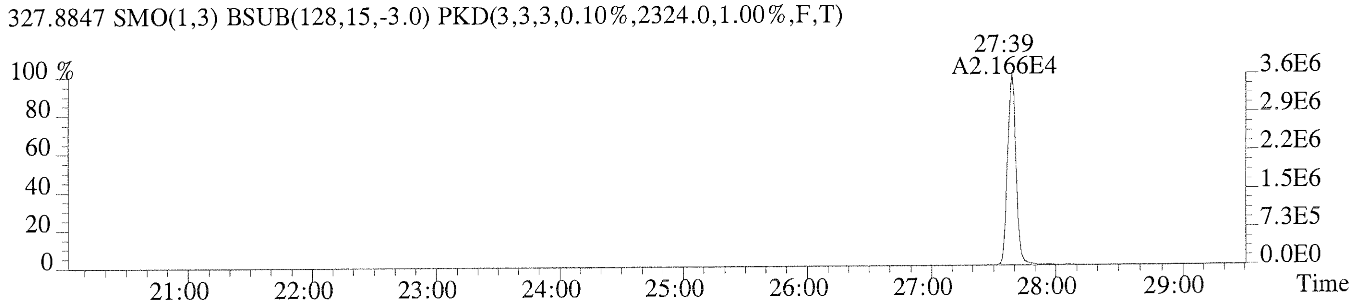
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7560.0,1.00%,F,T)



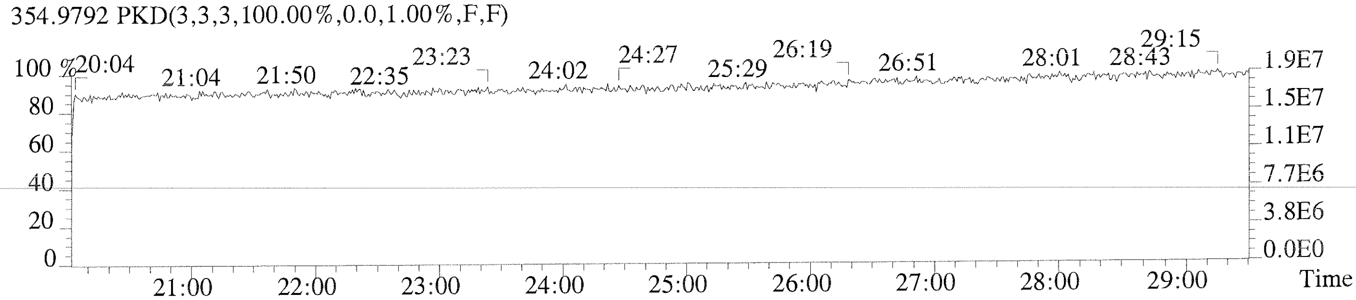
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3460.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2324.0,1.00%,F,T)

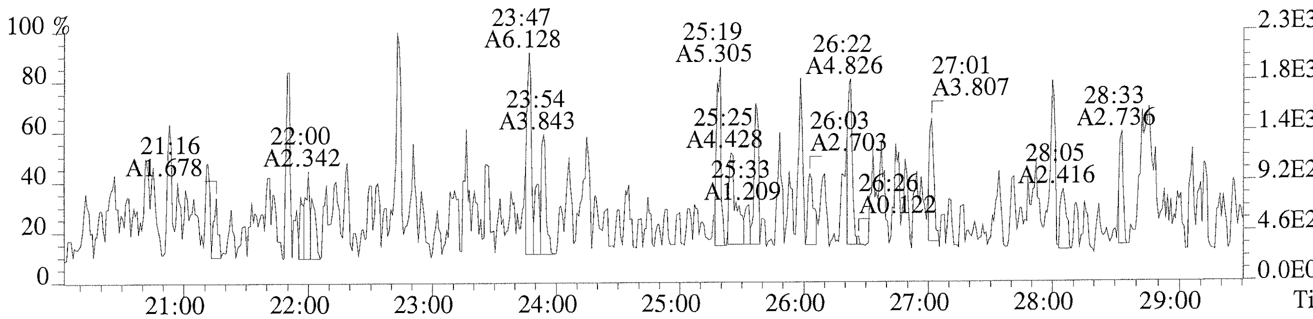


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

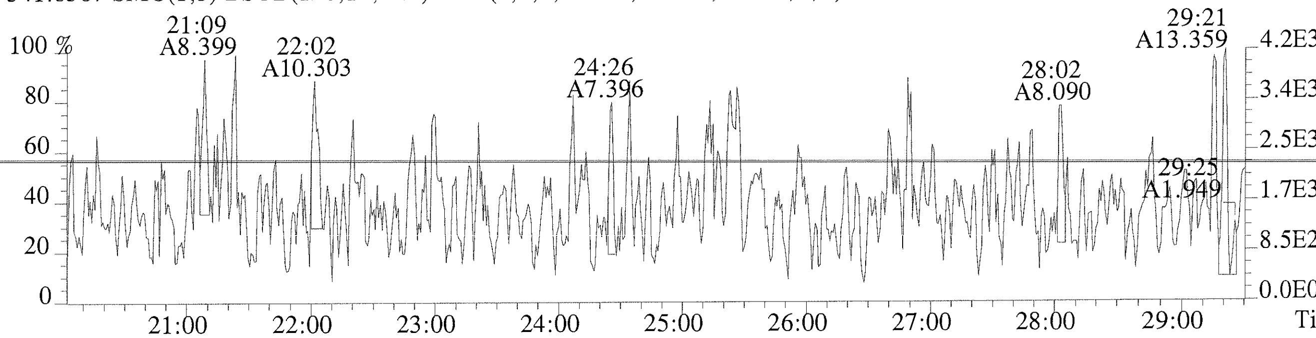


File:P231791 #1-730 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

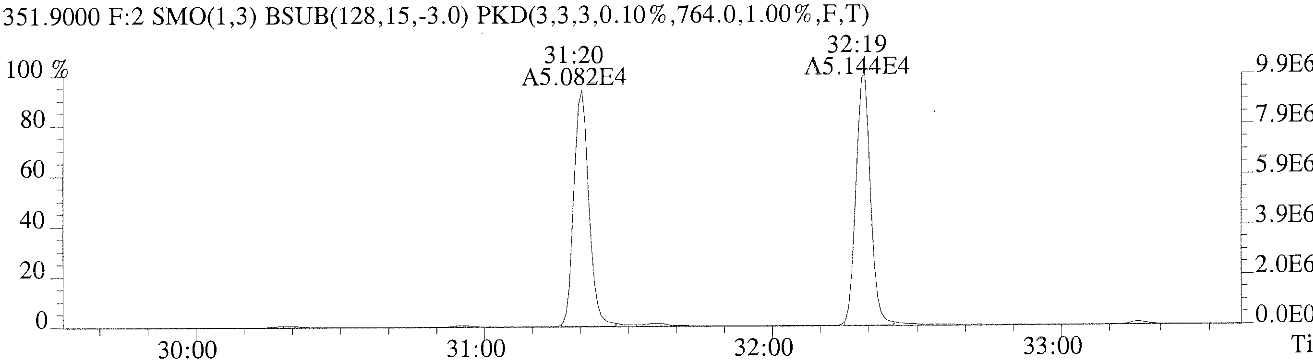
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



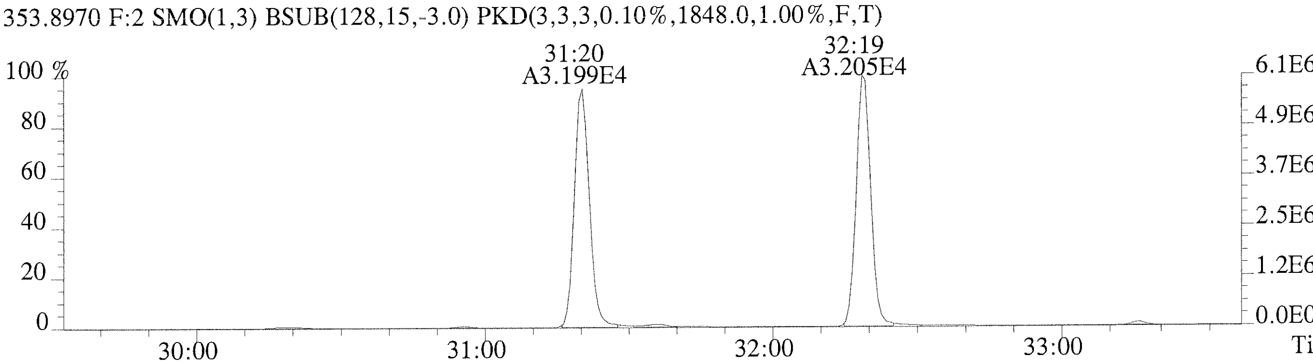
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



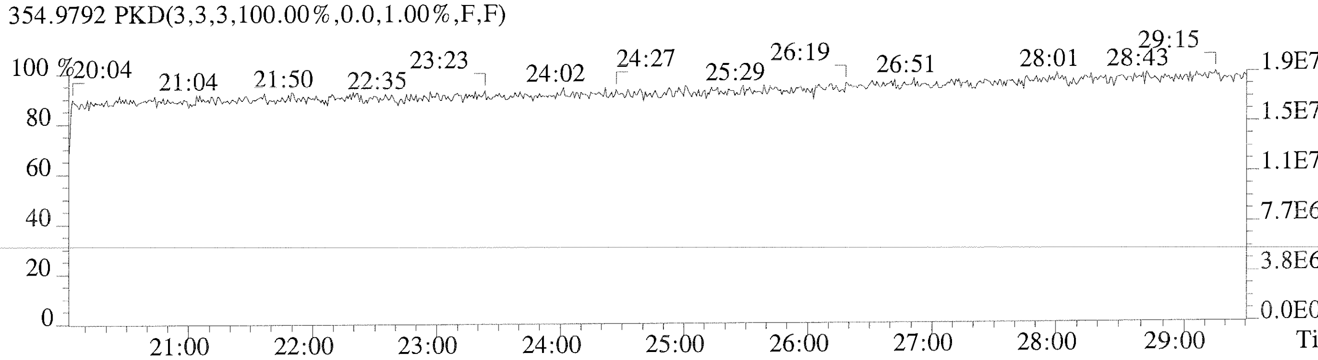
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



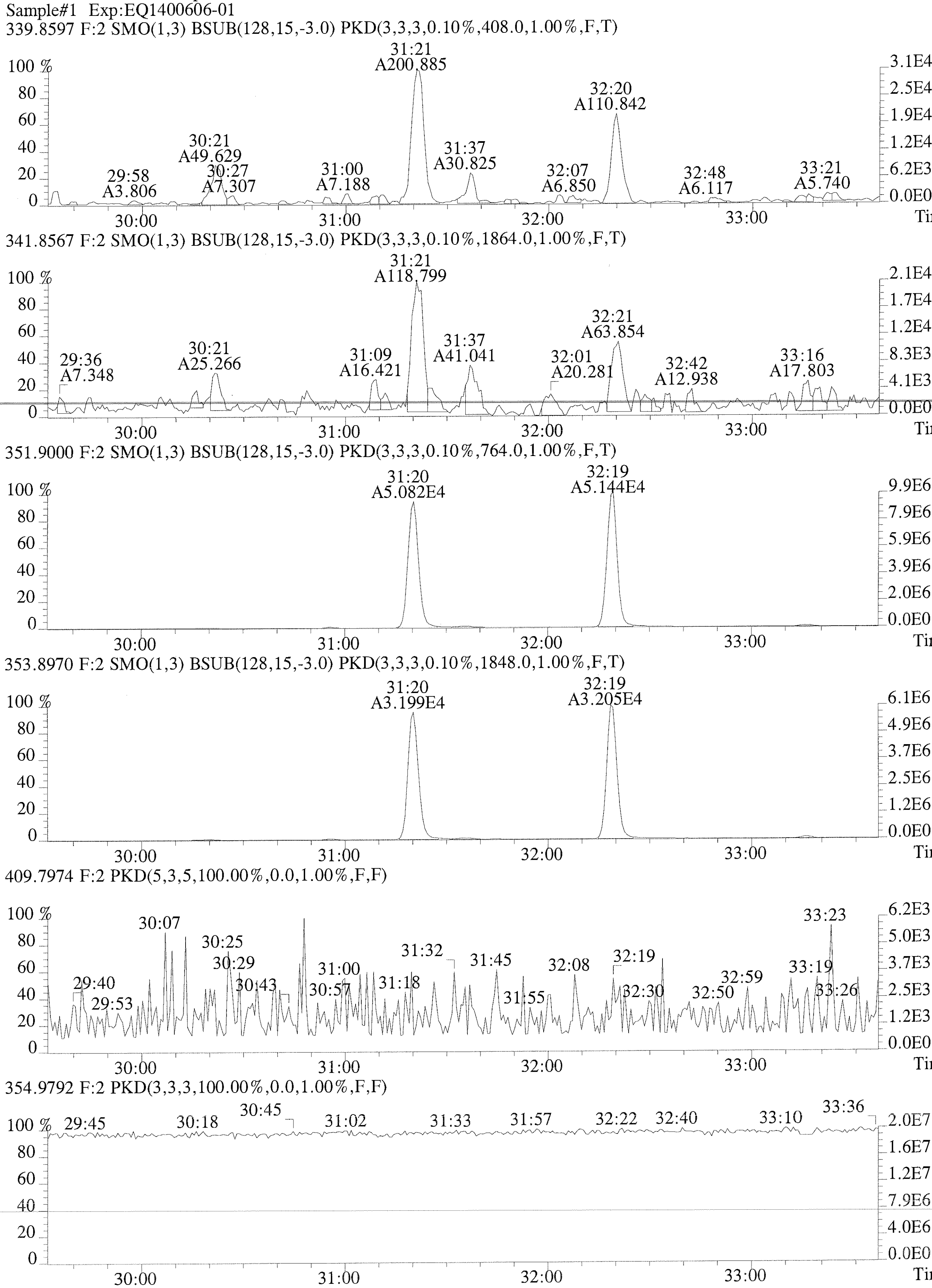
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

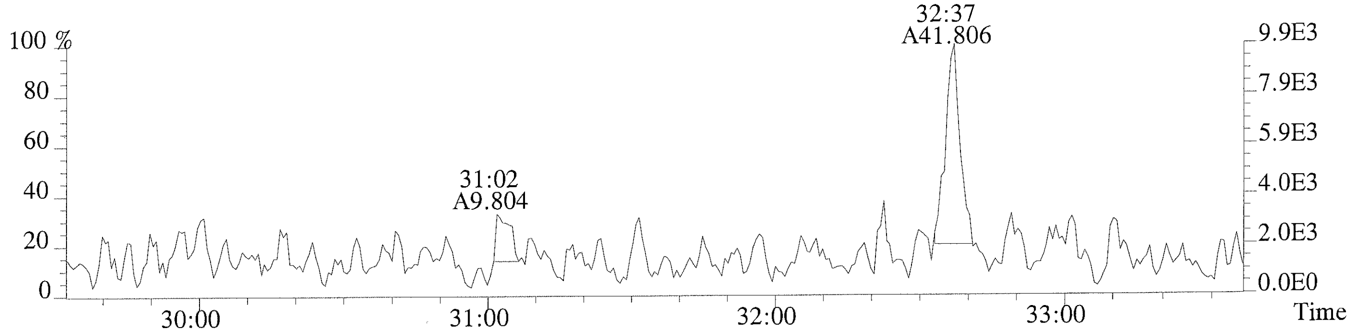


File:P231791 #1-370 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

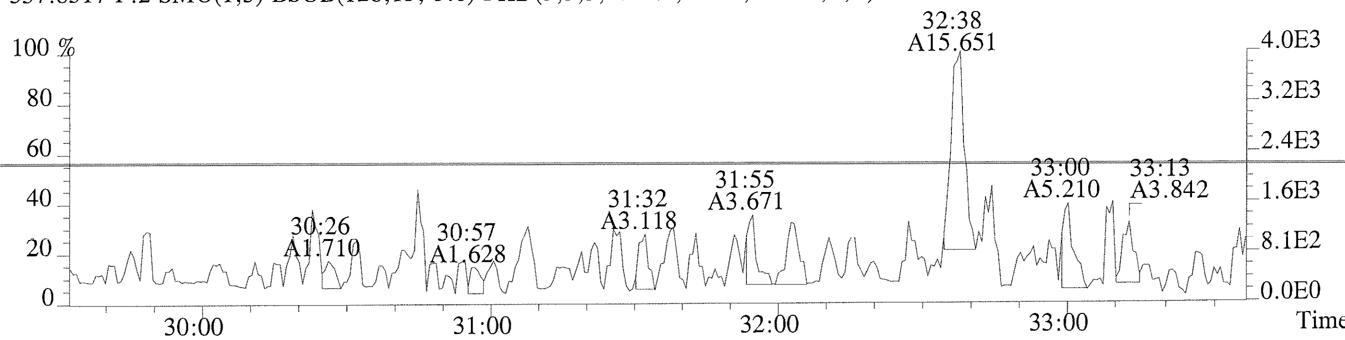


File:P231791 #1-370 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

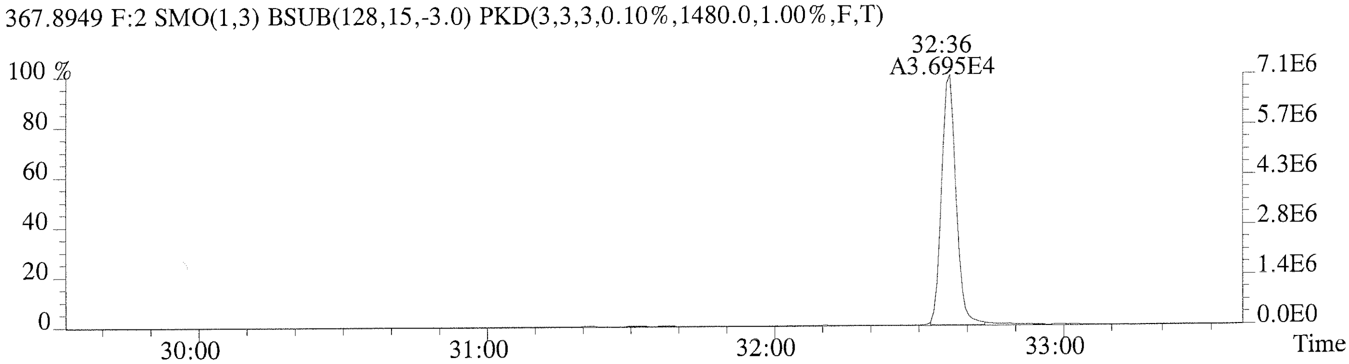
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



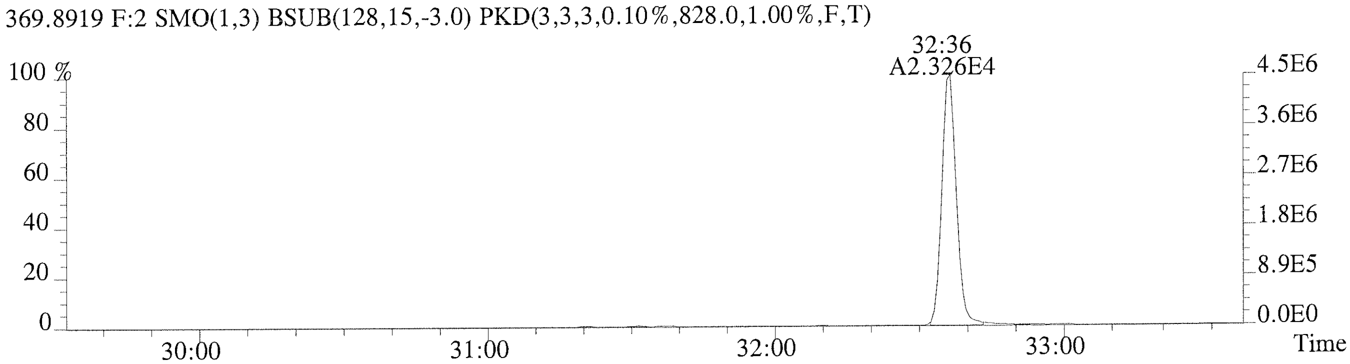
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



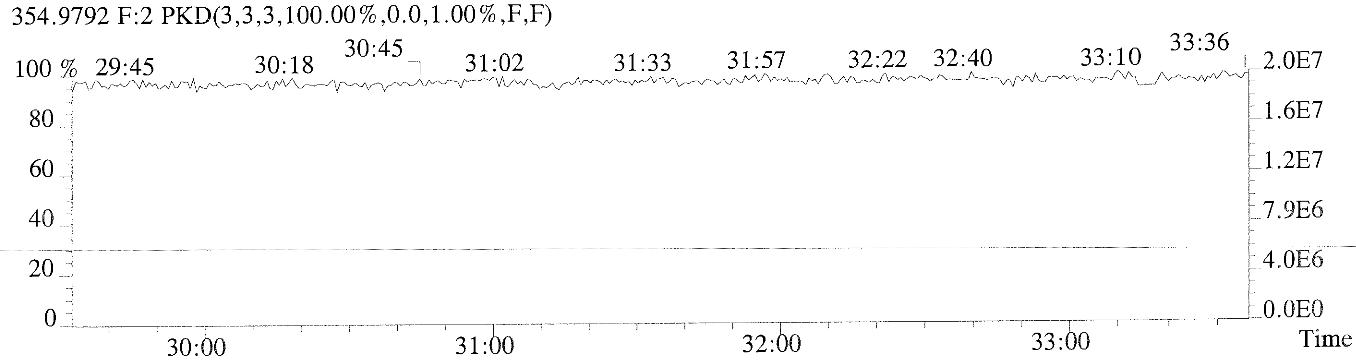
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



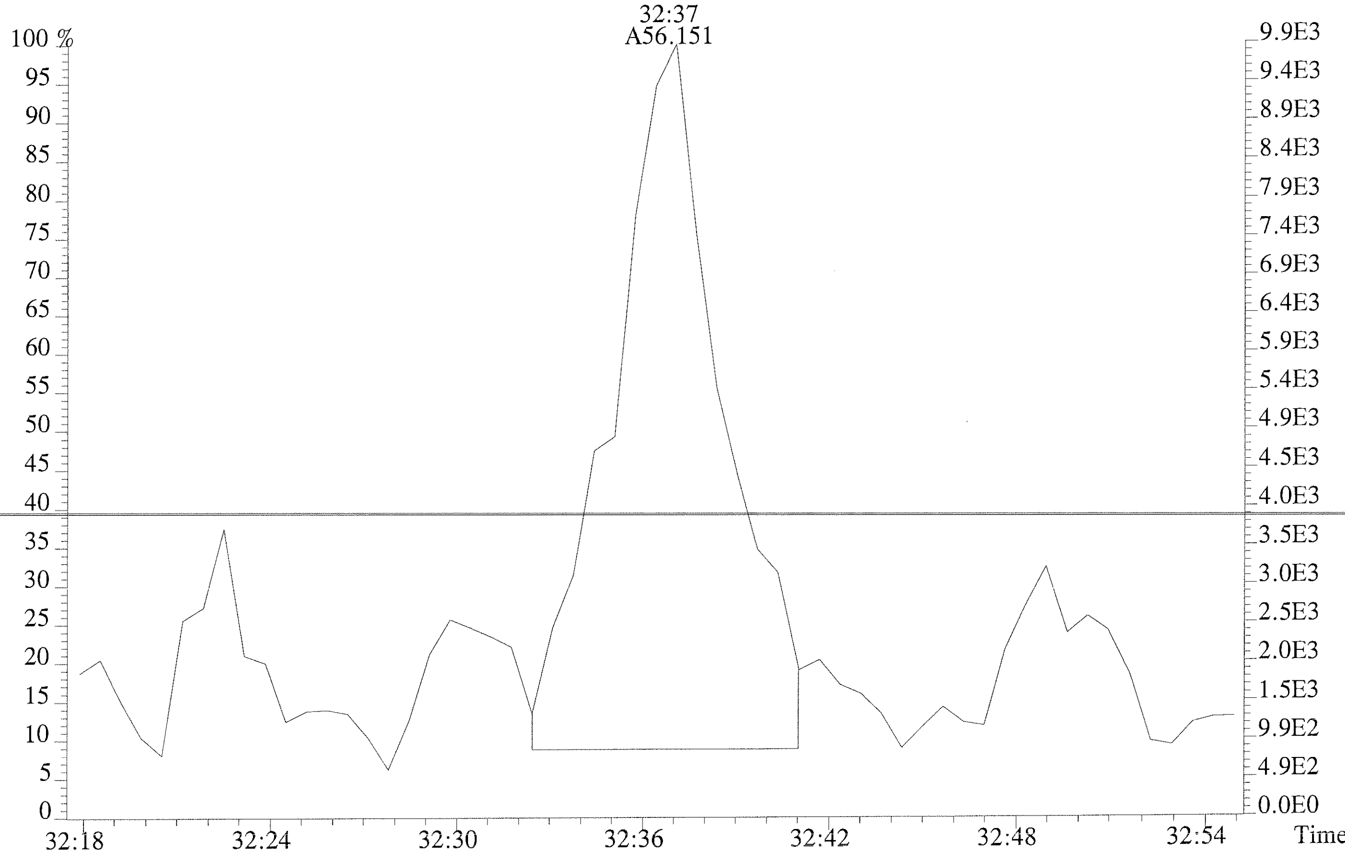
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



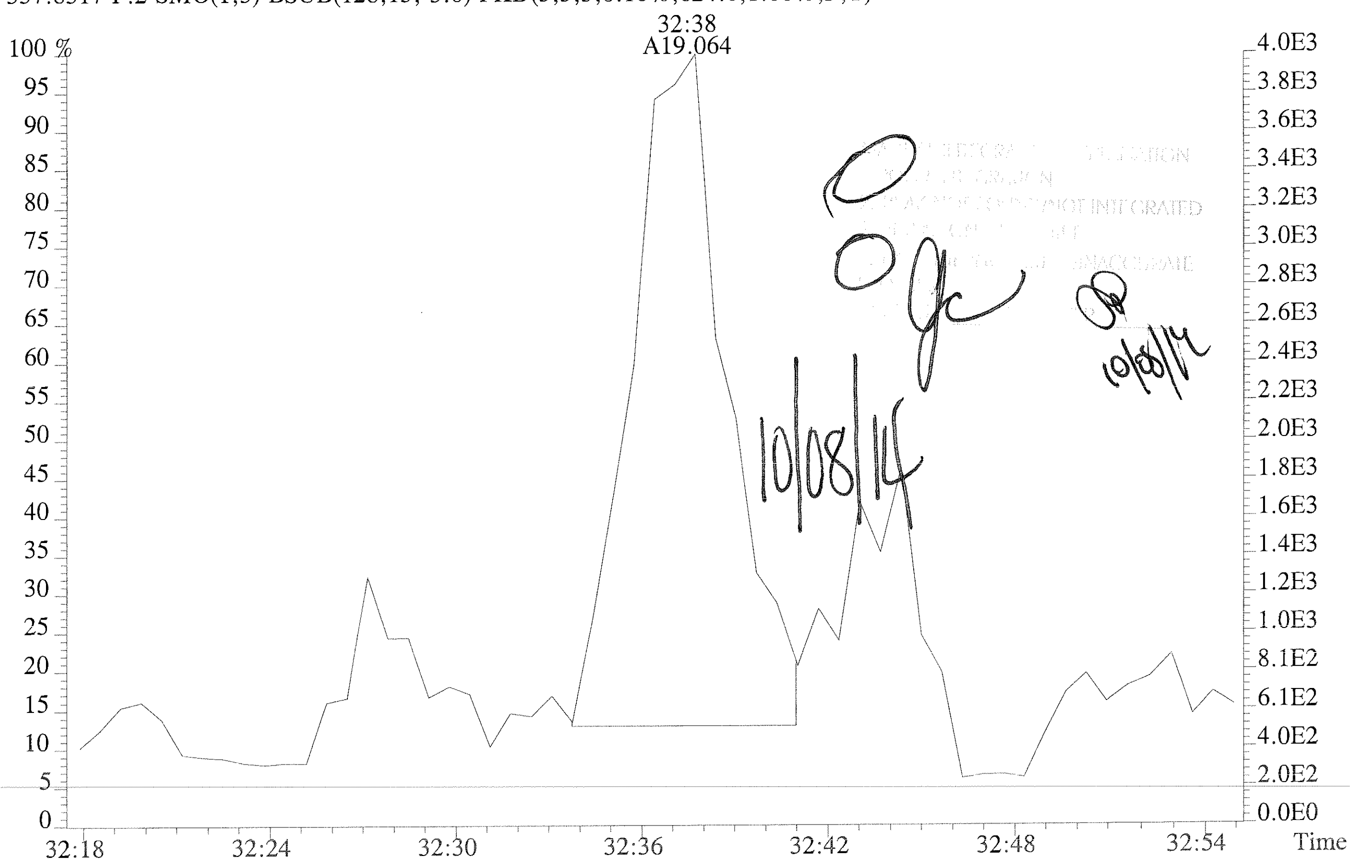
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



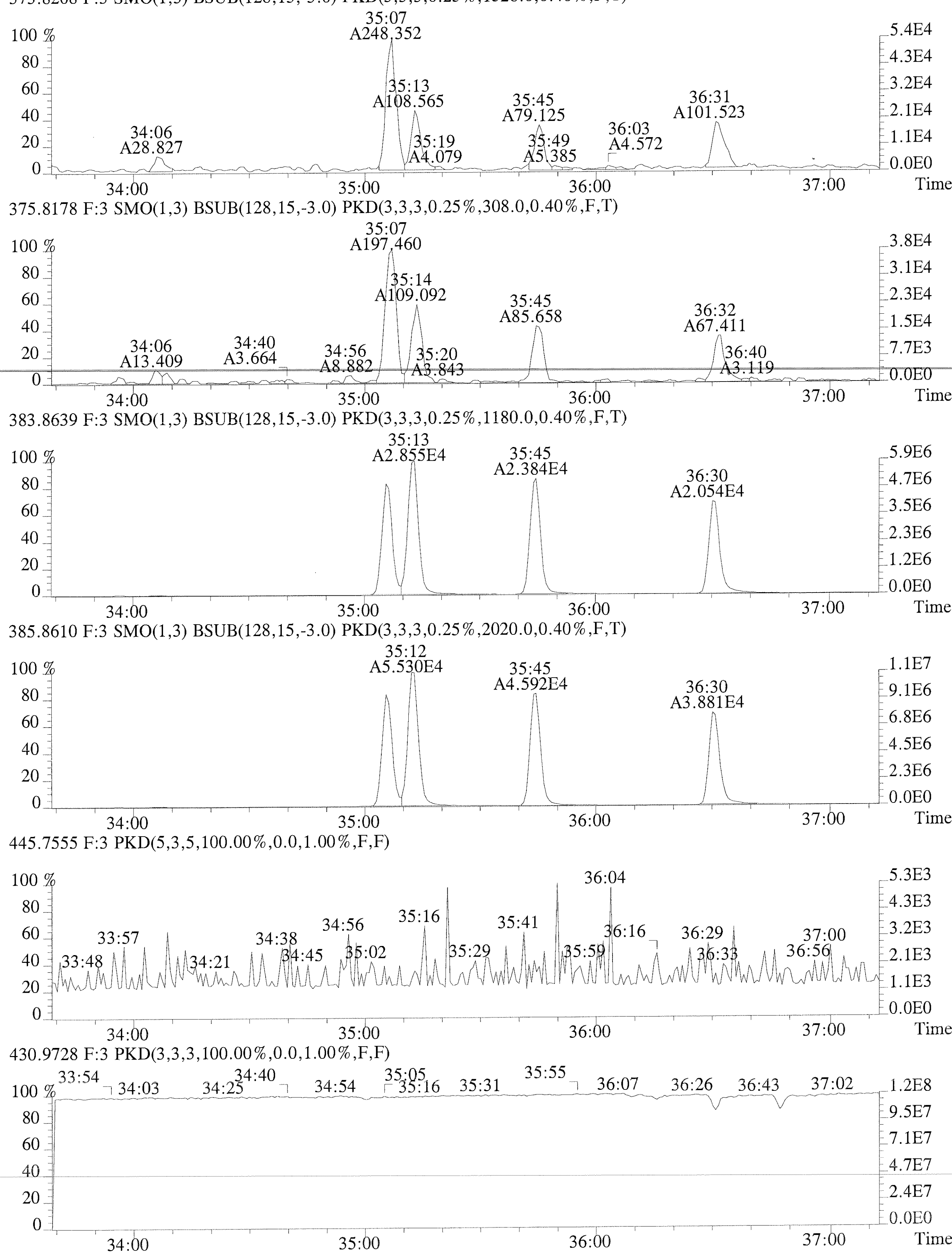
File:P231791 #1-370 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



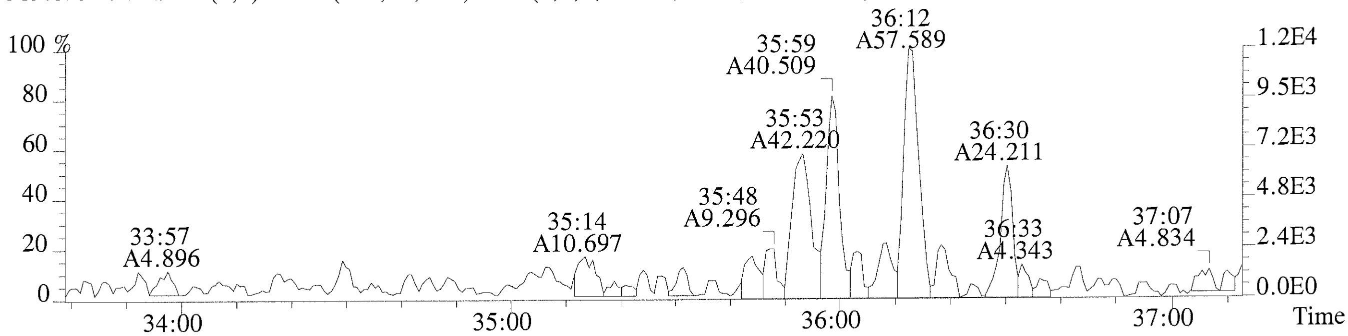
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



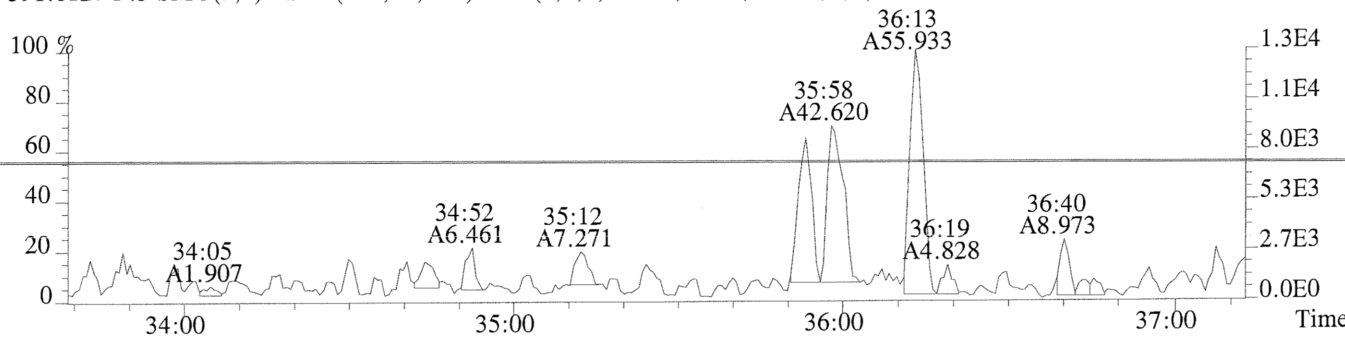
File:P231791 #1-324 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01



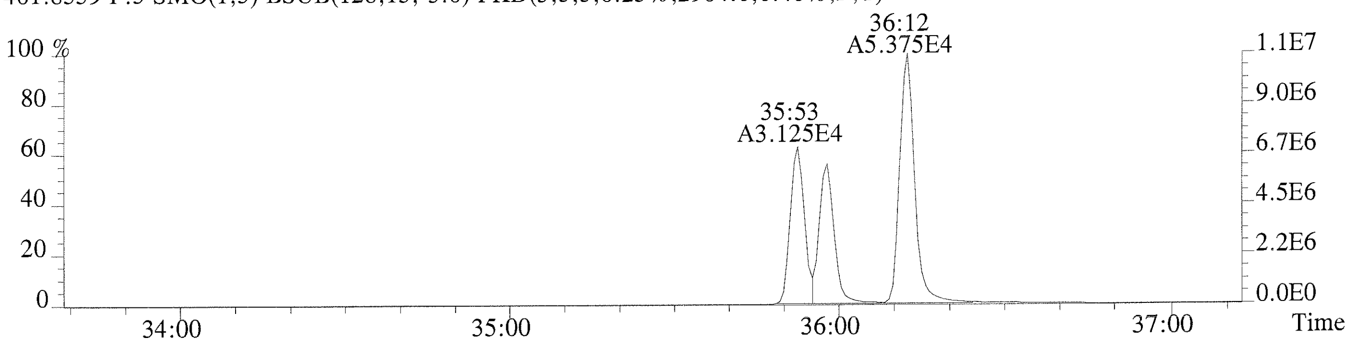
File:P231791 #1-324 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



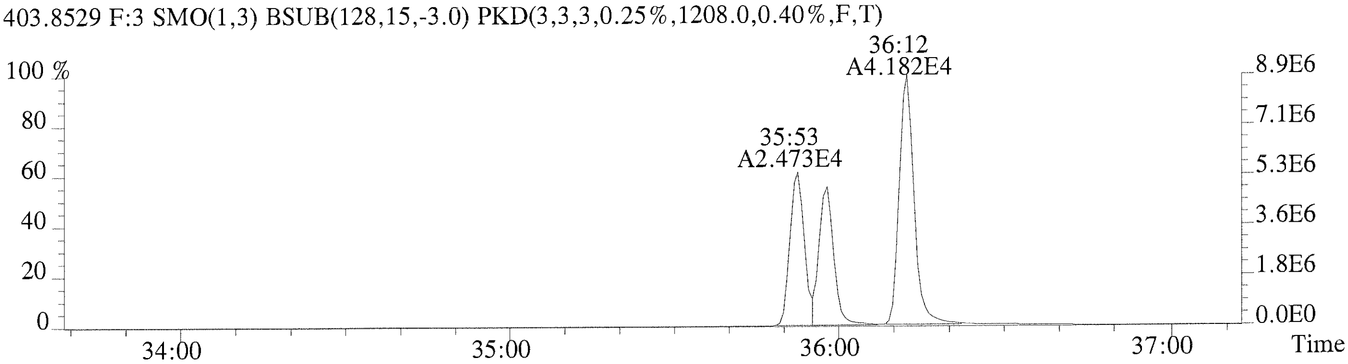
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



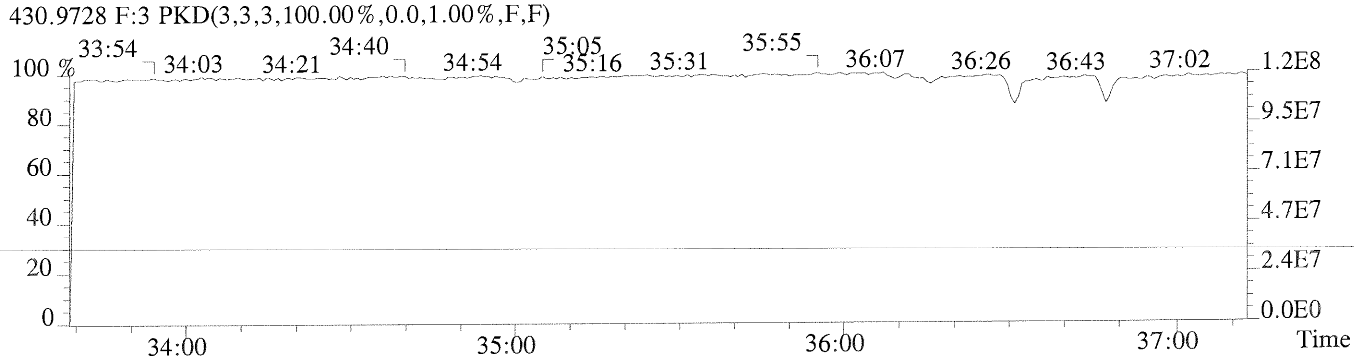
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2904.0,0.40%,F,T)



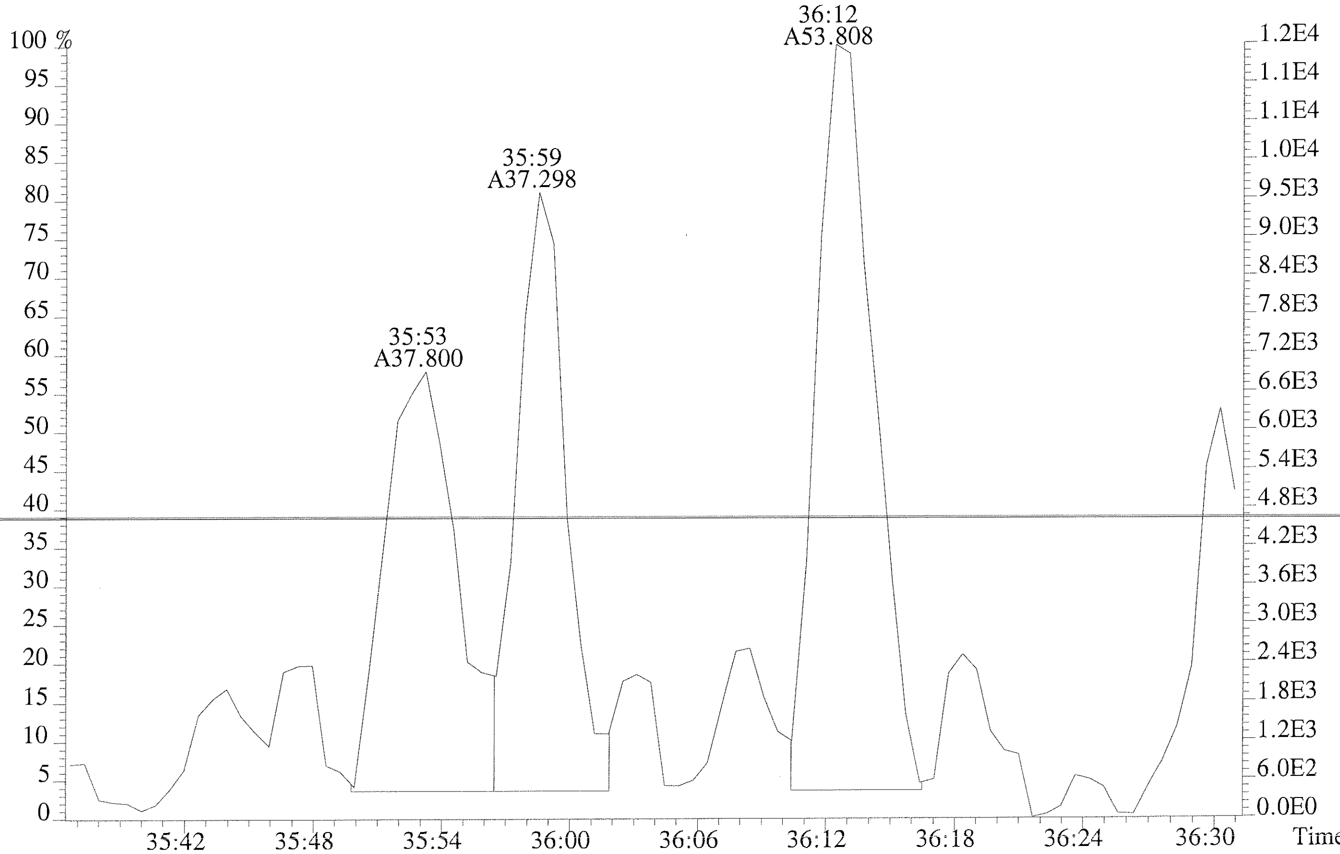
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



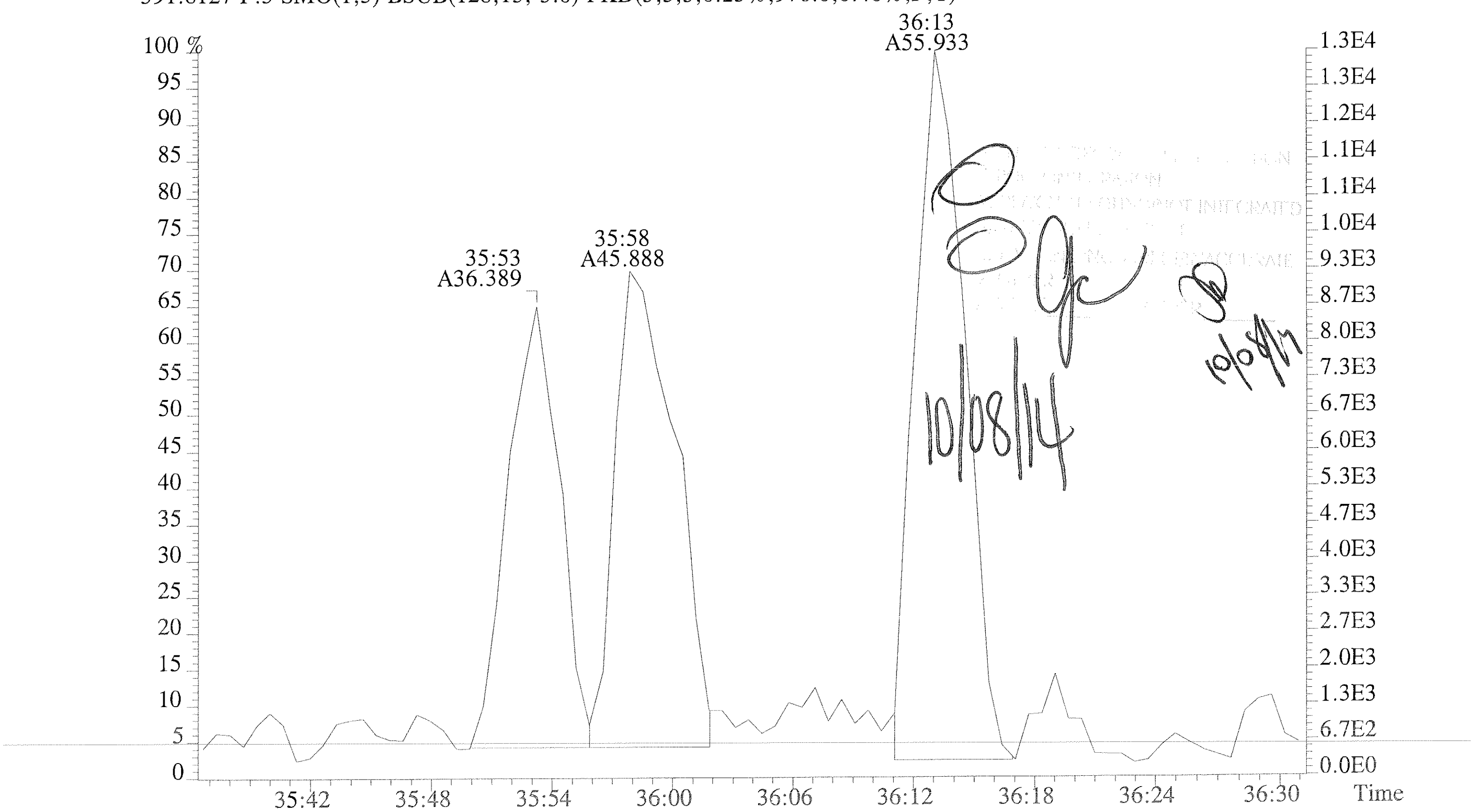
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P231791 #1-324 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)

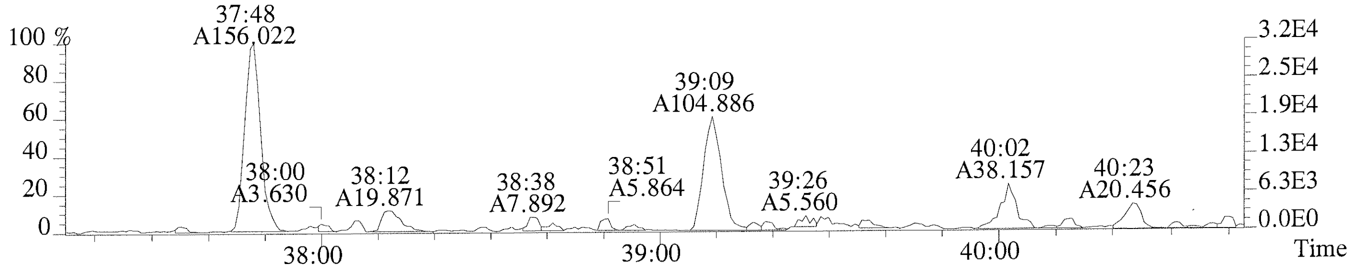


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)

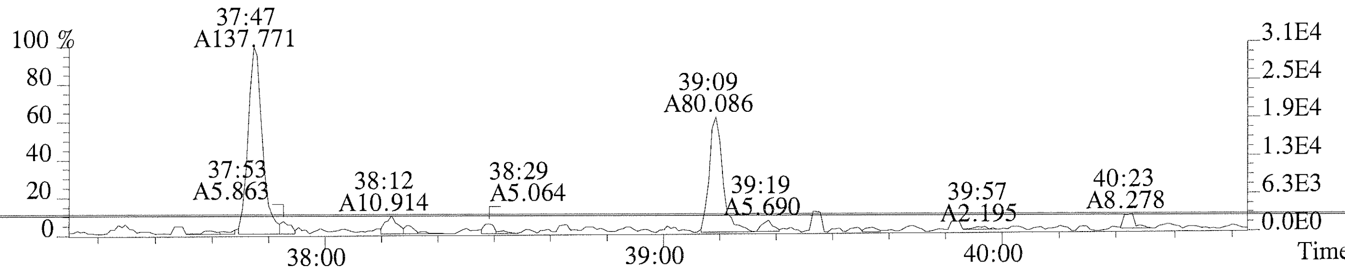


File:P231791 #1-315 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

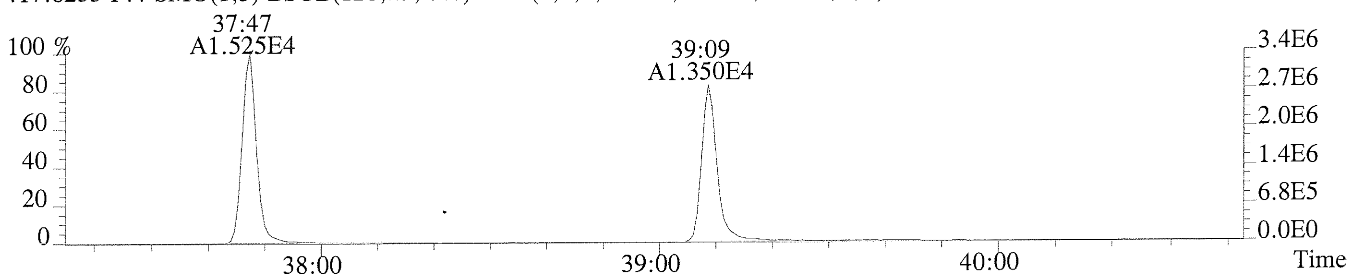
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



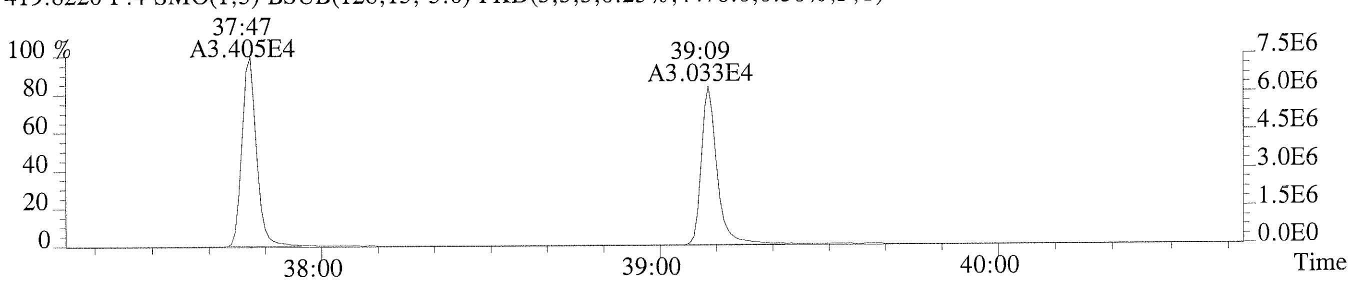
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.50%,F,T)



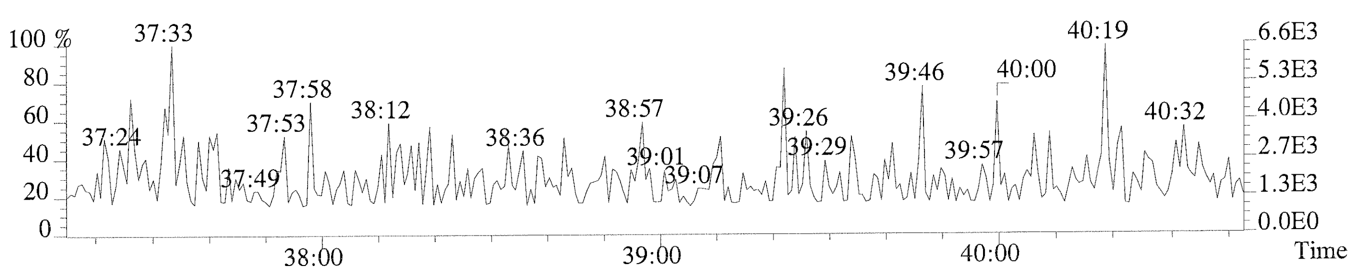
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3476.0,0.50%,F,T)



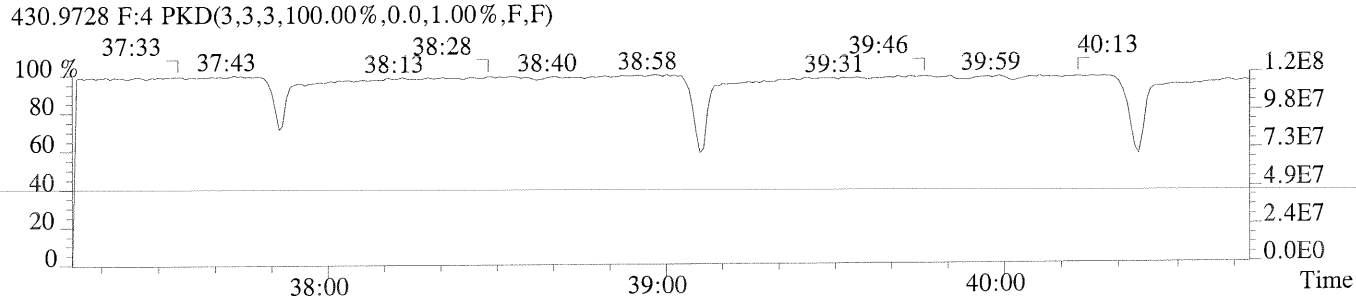
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4476.0,0.50%,F,T)



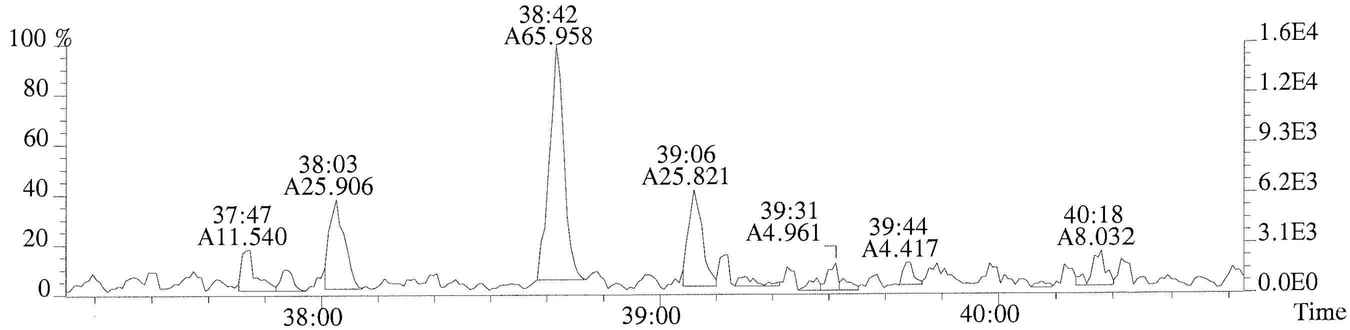
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



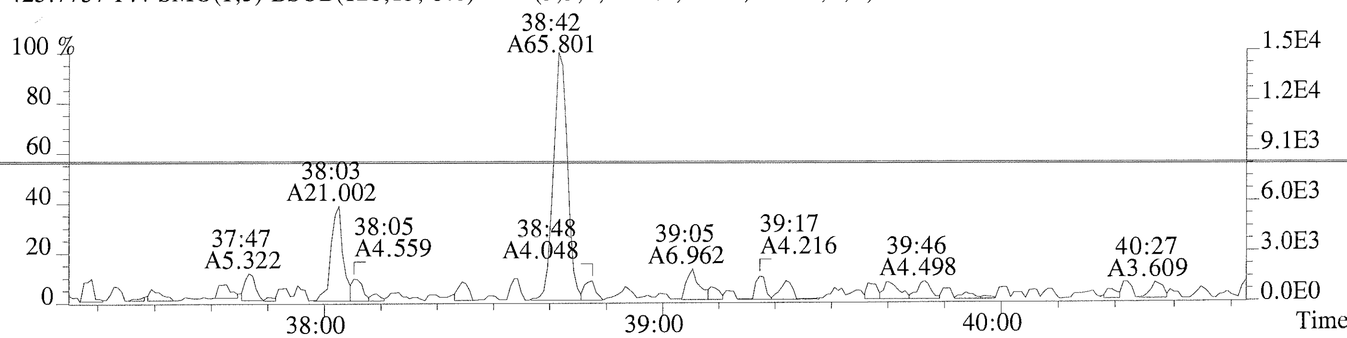
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



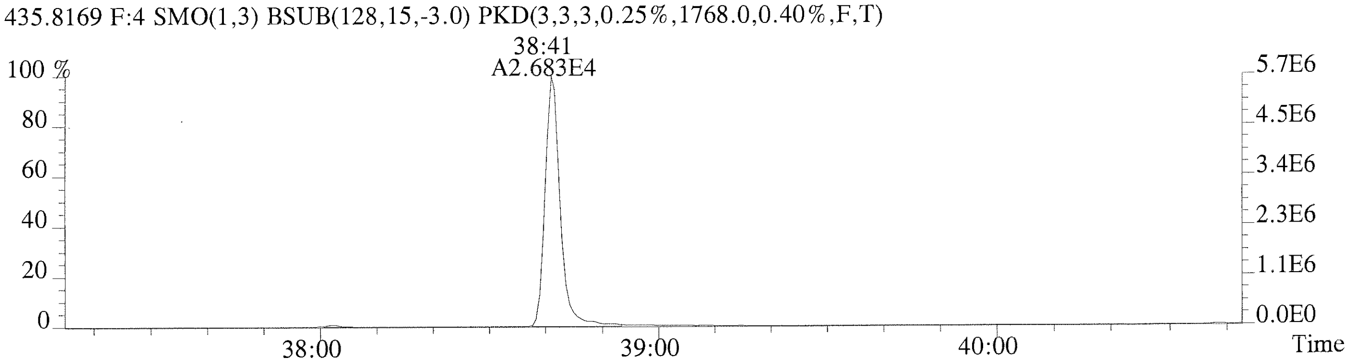
File:P231791 #1-315 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



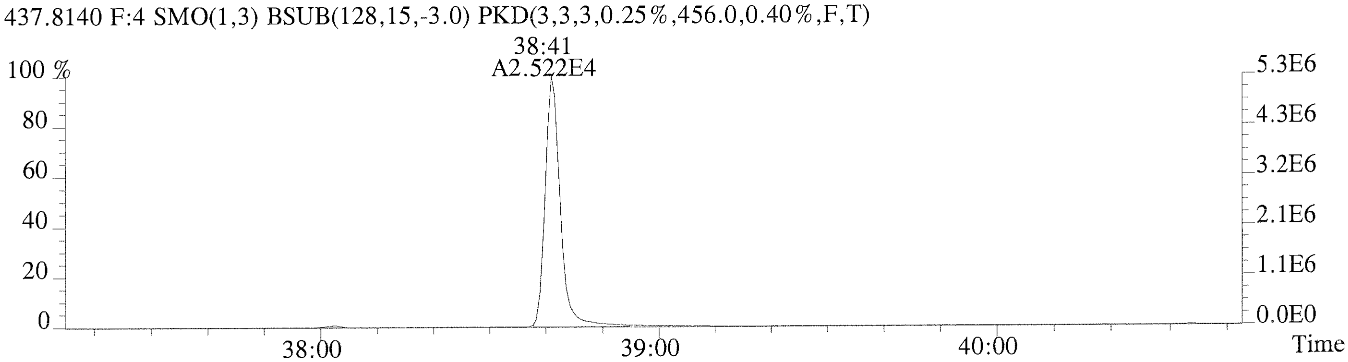
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



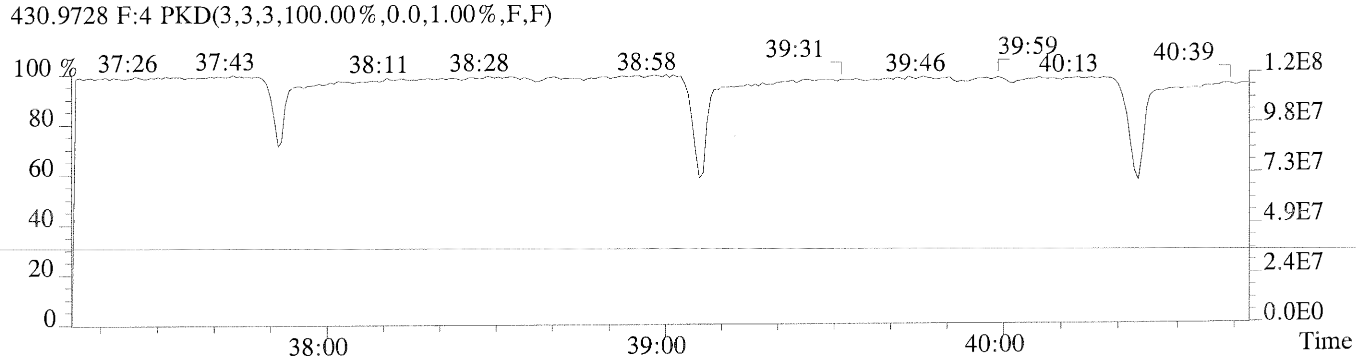
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



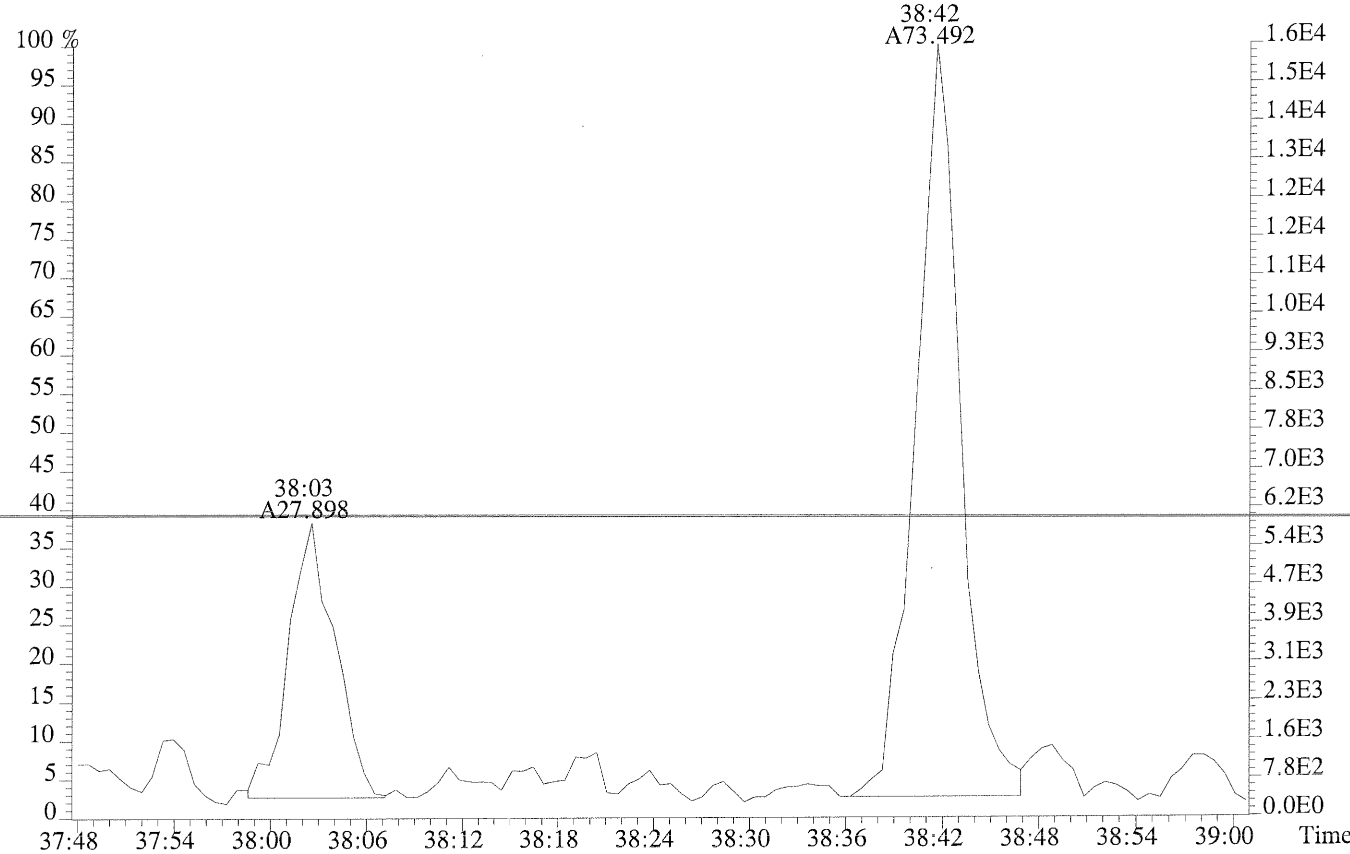
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



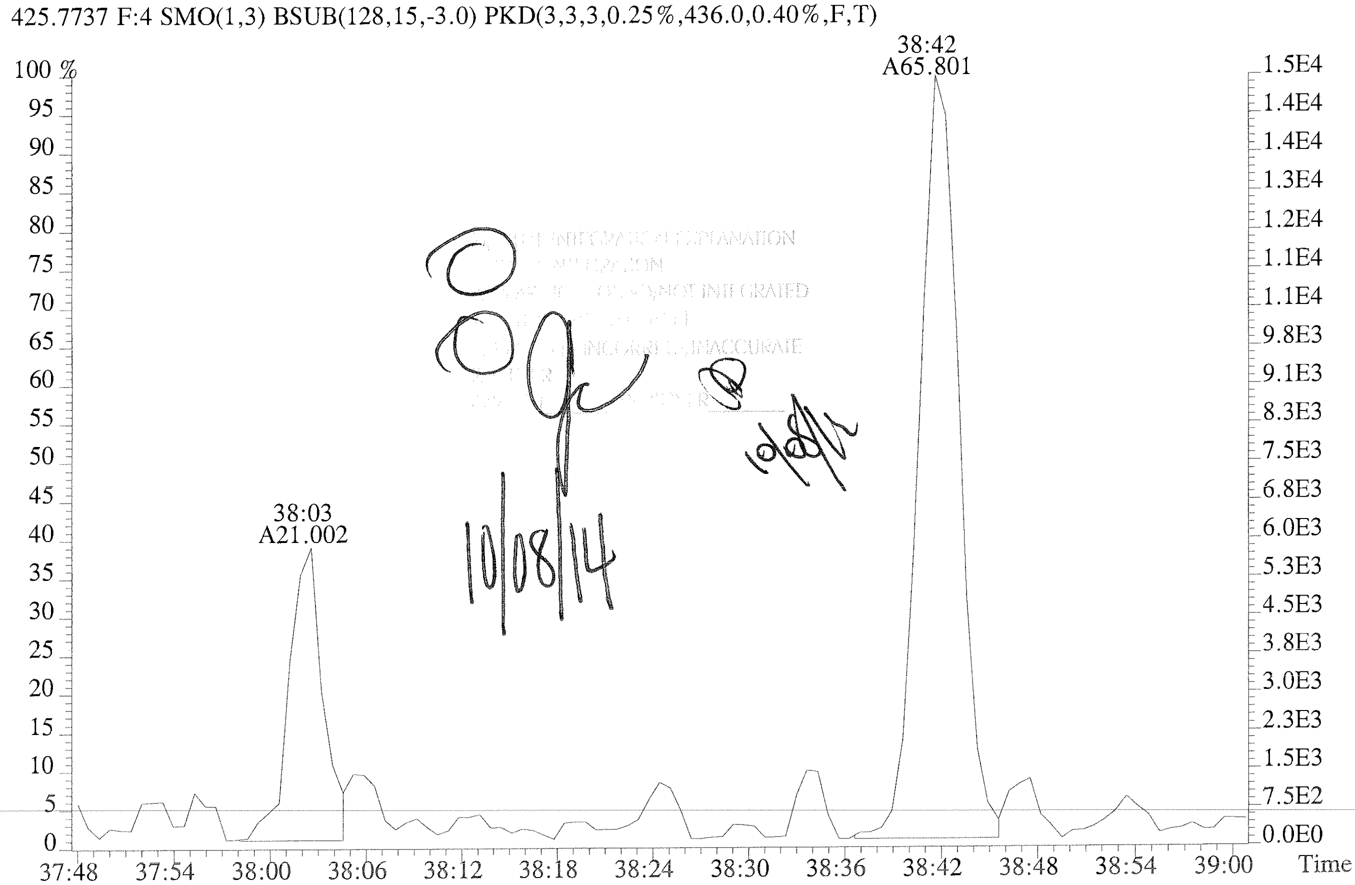
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P231791 #1-315 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)

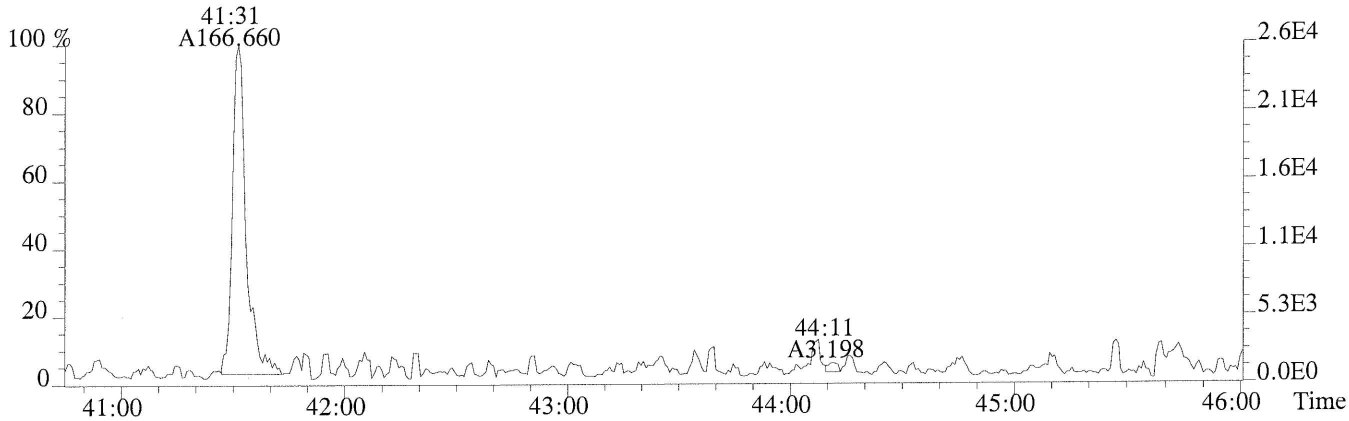


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)

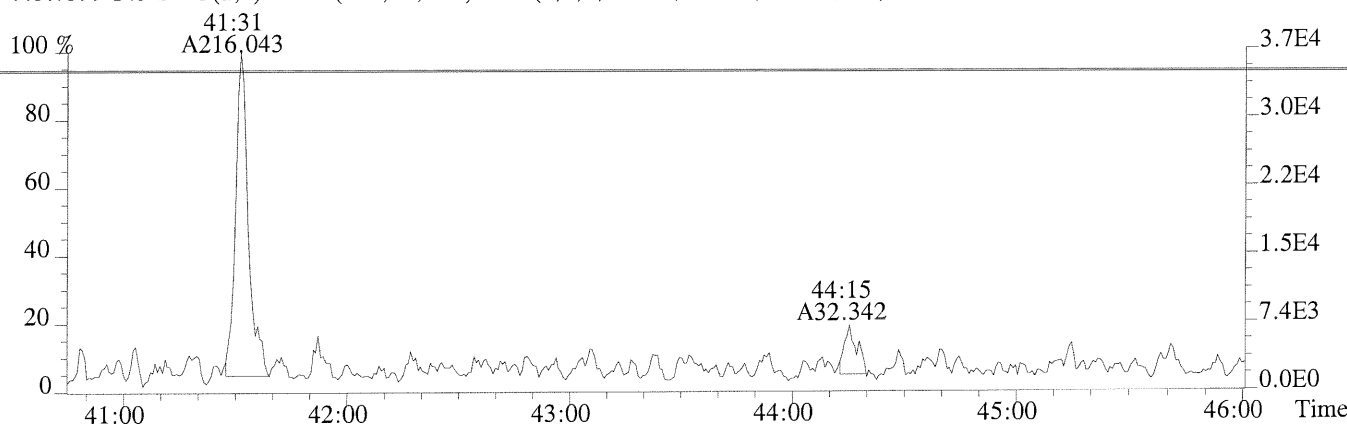


File:P231791 #1-484 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01

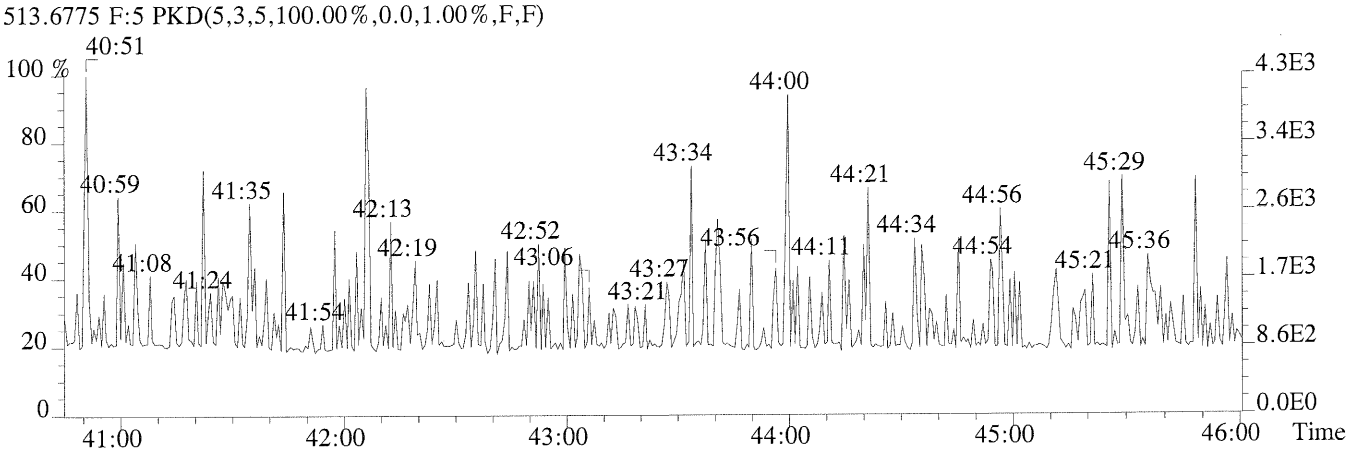
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



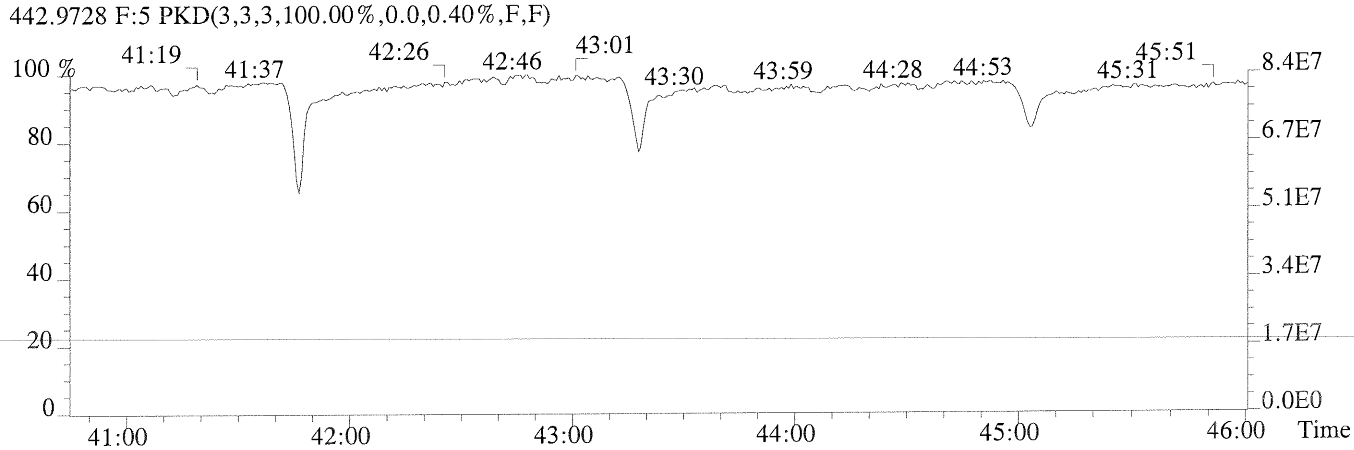
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3036.0,0.40%,F,T)



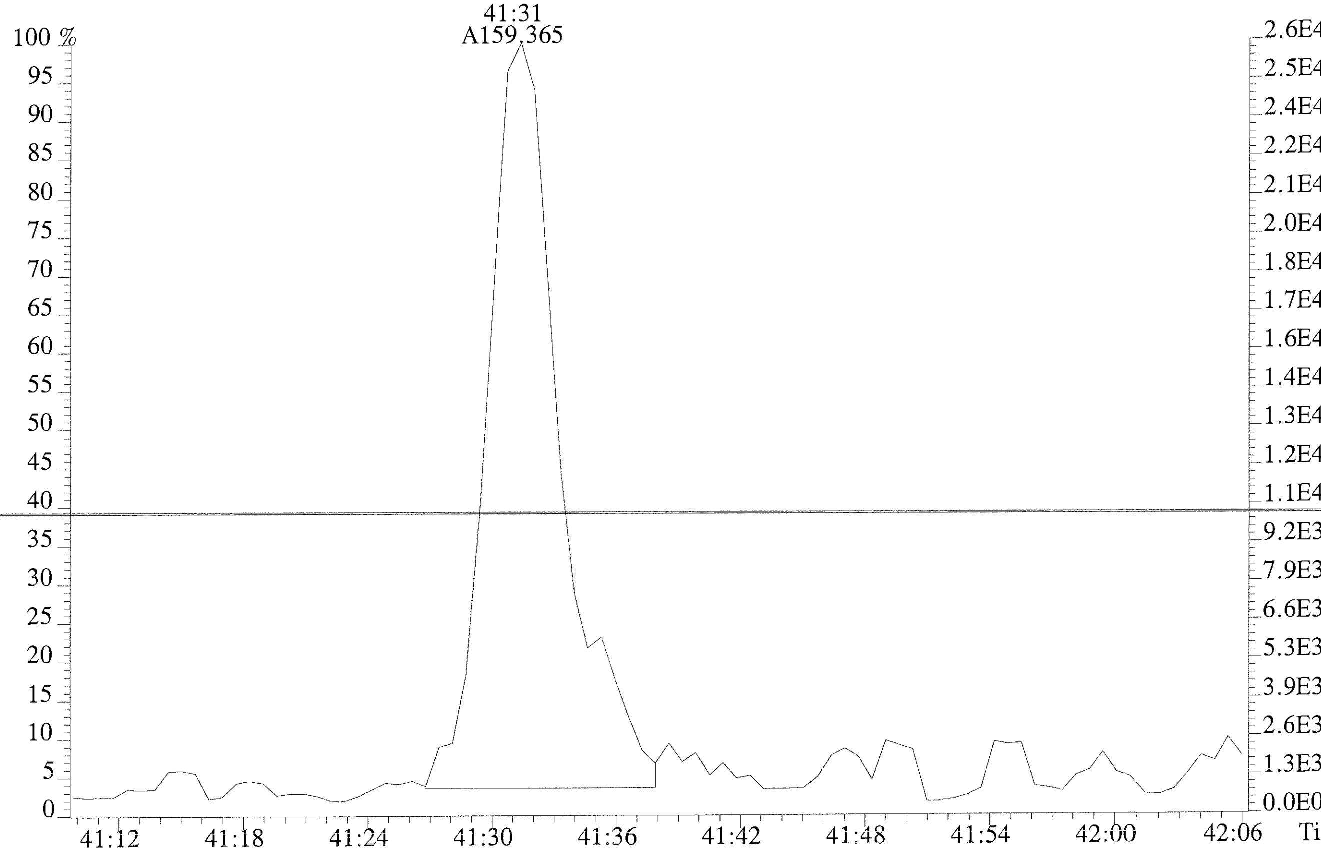
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



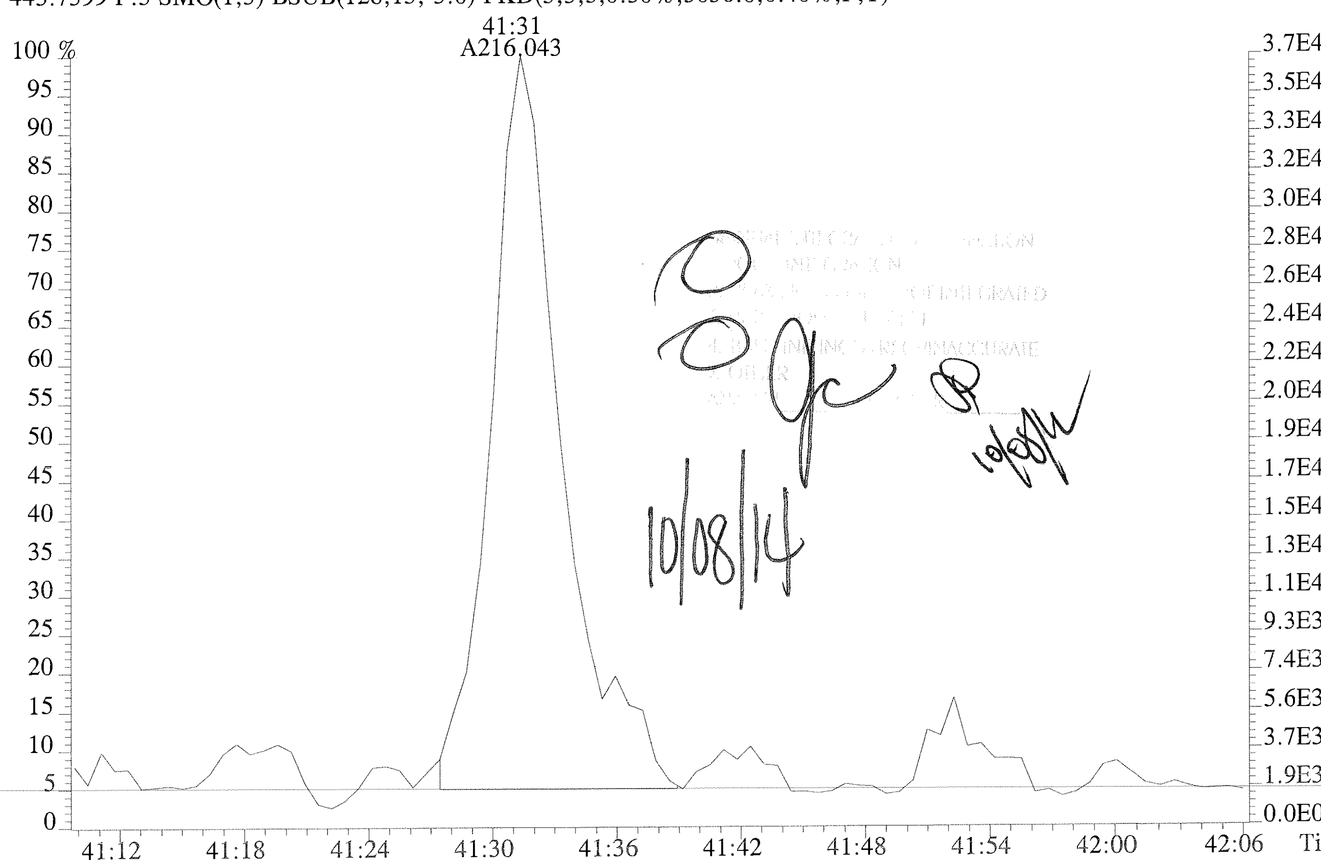
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P231791 #1-484 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



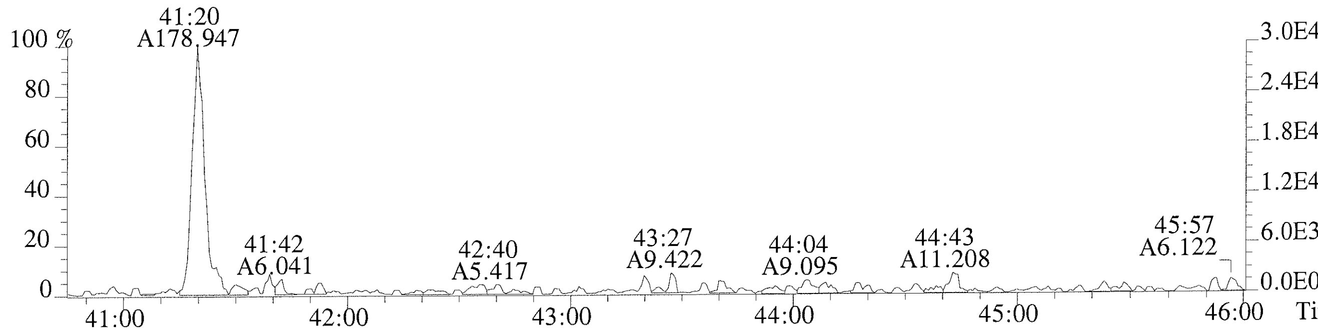
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3036.0,0.40%,F,T)



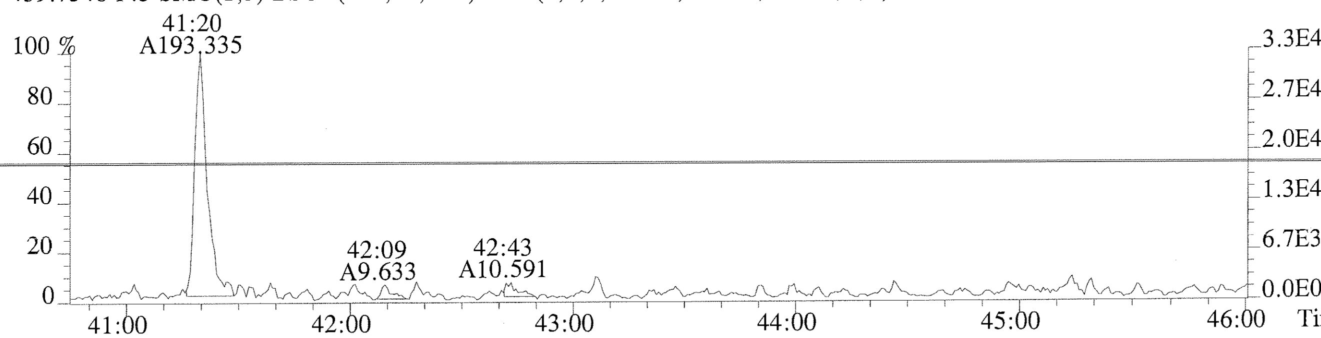
10/08/14

10/08/14

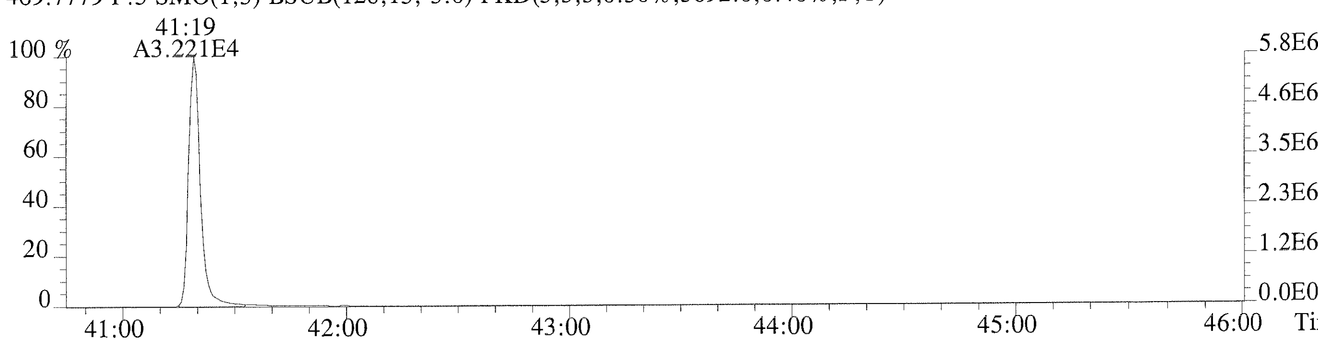
File:P231791 #1-484 Acq: 7-OCT-2014 13:12:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



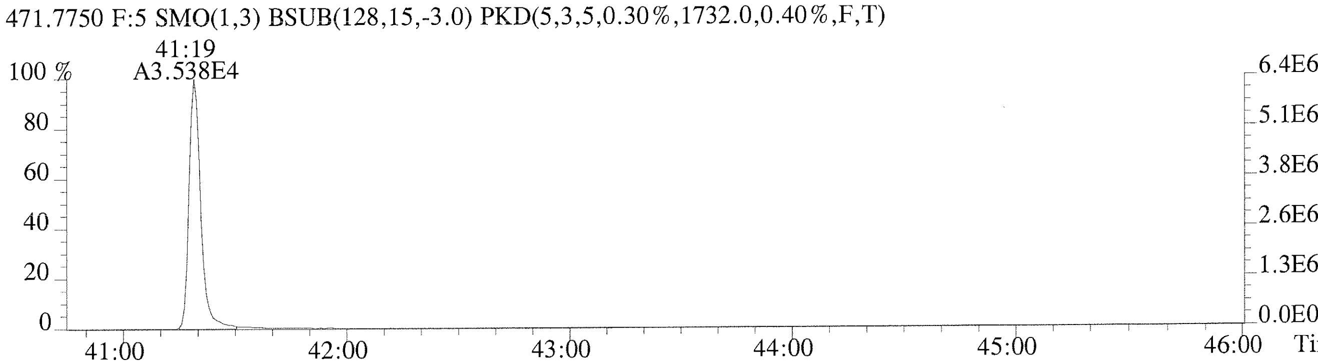
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1216.0,0.40%,F,T)



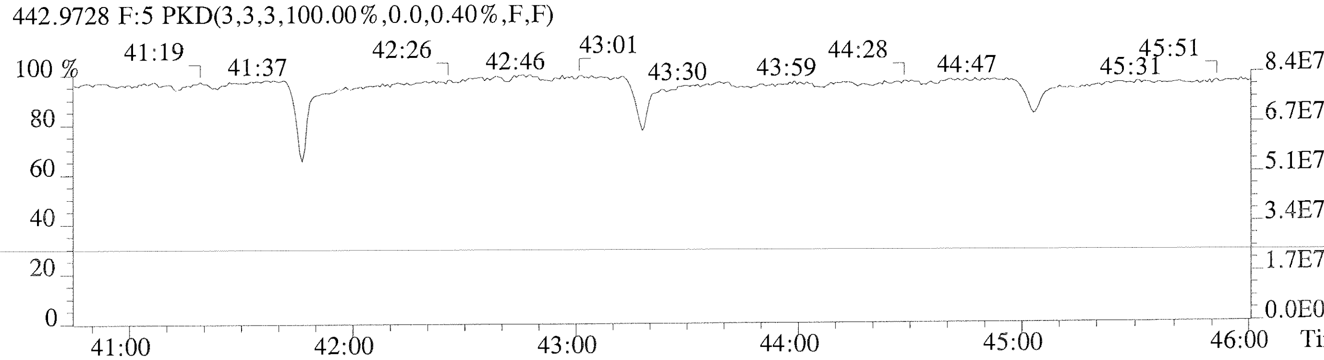
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3692.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1732.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
LCS

Run #17 Filename P173841 Samp: 1 Inj: 1 Acquired: 4-OCT-14 06:16:28
Processed: 6-OCT-14 12:18:26 Sample ID: EQ1400606-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:56	8.133e+02	1.084e+03	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:56	7.540e+03	4.657e+03	1.62	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:49	7.450e+03	4.587e+03	1.62	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:24	6.782e+03	5.462e+03	1.24	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:31	7.174e+03	5.739e+03	1.25	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:00	6.743e+03	5.322e+03	1.27	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:45	6.220e+03	4.819e+03	1.29	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:58	4.520e+03	4.210e+03	1.07	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:24	4.653e+03	4.455e+03	1.04	yes	no	1.324
10	Unk	OCDF	42:57	6.069e+03	6.735e+03	0.90	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:40	7.177e+02	8.795e+02	0.82	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:05	5.017e+03	3.293e+03	1.52	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:07	4.454e+03	3.638e+03	1.22	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:12	4.502e+03	3.640e+03	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:26	4.847e+03	3.824e+03	1.27	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:53	3.536e+03	3.428e+03	1.03	yes	no	1.016
17	Unk	OCDD	42:44	4.710e+03	5.376e+03	0.88	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:55	8.439e+03	1.089e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:55	1.230e+04	7.905e+03	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:48	1.308e+04	8.278e+03	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	5.888e+03	1.151e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:30	7.384e+03	1.461e+04	0.51	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	6.326e+03	1.213e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:44	5.331e+03	1.031e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:57	3.144e+03	7.253e+03	0.43	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:23	3.673e+03	8.350e+03	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:39	6.445e+03	8.297e+03	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:04	1.062e+04	6.576e+03	1.61	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:06	8.948e+03	7.094e+03	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:12	8.361e+03	6.685e+03	1.25	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:53	6.429e+03	6.238e+03	1.03	yes	no	0.862
32	IS	13C-OCDD	42:44	8.178e+03	9.147e+03	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:07	1.059e+04	1.345e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:26	1.435e+04	1.133e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:40	6.007e+03				no	1.125

```
        (4.710e+03 + 5.376e+03) x 4000  pg x 1
 OCDD =-------------------------------------------------------- =
        (8.178e+03 + 9.147e+03) x       g  x      / 100 x 1.079
```


10450 Stancliff Rd., Suite 115
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
LCS

Run #17 Filename P173841 Samp: 1 Inj: 1 Acquired: 4-OCT-14 06:16:28
Processed: 6-OCT-14 12:18:261 LAB. ID: EQ1400606-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.49e+05	1.72e+02	8.6e+02	1.92e+05	6.16e+02	3.1e+02
2	1,2,3,7,8-PeCDF	1.43e+06	1.04e+02	1.4e+04	8.92e+05	8.56e+02	1.0e+03
3	2,3,4,7,8-PeCDF	1.54e+06	1.04e+02	1.5e+04	9.38e+05	8.56e+02	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.47e+06	3.72e+02	4.0e+03	1.20e+06	5.20e+01	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.57e+06	3.72e+02	4.2e+03	1.25e+06	5.20e+01	2.4e+04
6	2,3,4,6,7,8-HxCDF	1.54e+06	3.72e+02	4.1e+03	1.20e+06	5.20e+01	2.3e+04
7	1,2,3,7,8,9-HxCDF	1.29e+06	3.72e+02	3.5e+03	9.74e+05	5.20e+01	1.9e+04
8	1,2,3,4,6,7,8-HpCDF	9.60e+05	1.12e+03	8.5e+02	9.11e+05	1.02e+03	8.9e+02
9	1,2,3,4,7,8,9-HpCDF	9.04e+05	1.12e+03	8.0e+02	8.64e+05	1.02e+03	8.4e+02
10	OCDF	9.97e+05	2.52e+02	4.0e+03	1.10e+06	5.56e+02	2.0e+03
11	2,3,7,8-TCDD	1.40e+05	2.96e+02	4.7e+02	1.72e+05	4.36e+02	4.0e+02
12	1,2,3,7,8-PeCDD	1.05e+06	6.08e+02	1.7e+03	6.88e+05	1.80e+02	3.8e+03
13	1,2,3,4,7,8-HxCDD	1.01e+06	1.60e+02	6.3e+03	8.33e+05	4.04e+02	2.1e+03
14	1,2,3,6,7,8-HxCDD	9.96e+05	1.60e+02	6.2e+03	8.03e+05	4.04e+02	2.0e+03
15	1,2,3,7,8,9-HxCDD	1.03e+06	1.60e+02	6.5e+03	8.34e+05	4.04e+02	2.1e+03
16	1,2,3,4,6,7,8-HpCDD	7.17e+05	3.72e+02	1.9e+03	6.99e+05	8.40e+01	8.3e+03
17	OCDD	8.02e+05	6.80e+01	1.2e+04	9.10e+05	2.48e+02	3.7e+03
18	13C-2,3,7,8-TCDF	1.56e+06	8.60e+02	1.8e+03	2.06e+06	7.60e+02	2.7e+03
19	13C-1,2,3,7,8-PeCDF	2.41e+06	4.28e+02	5.6e+03	1.56e+06	2.04e+02	7.6e+03
20	13C-2,3,4,7,8-PeCDF	2.62e+06	4.28e+02	6.1e+03	1.66e+06	2.04e+02	8.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.28e+06	4.68e+02	2.7e+03	2.53e+06	7.40e+02	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.61e+06	4.68e+02	3.4e+03	3.23e+06	7.40e+02	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.43e+06	4.68e+02	3.0e+03	2.75e+06	7.40e+02	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.12e+06	4.68e+02	2.4e+03	2.12e+06	7.40e+02	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.38e+05	5.28e+02	1.2e+03	1.53e+06	5.96e+02	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.01e+05	5.28e+02	1.3e+03	1.60e+06	5.96e+02	2.7e+03
27	13C-2,3,7,8-TCDD	1.23e+06	2.82e+03	4.4e+02	1.58e+06	9.48e+02	1.7e+03
28	13C-1,2,3,7,8-PeCDD	2.17e+06	5.56e+02	3.9e+03	1.36e+06	2.88e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.05e+06	7.40e+02	2.8e+03	1.64e+06	3.76e+02	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	1.82e+06	7.40e+02	2.5e+03	1.47e+06	3.76e+02	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.32e+06	2.36e+02	5.6e+03	1.25e+06	2.56e+02	4.9e+03
32	13C-OCDD	1.35e+06	3.20e+02	4.2e+03	1.54e+06	2.92e+02	5.3e+03
33	13C-1,2,3,4-TCDD	2.04e+06	2.82e+03	7.2e+02	2.60e+06	9.48e+02	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	3.07e+06	7.40e+02	4.1e+03	2.46e+06	3.76e+02	6.6e+03
35	37Cl-2,3,7,8-TCDD	1.17e+06	4.20e+02	2.8e+03			

ALS ENVIRONMENTAL
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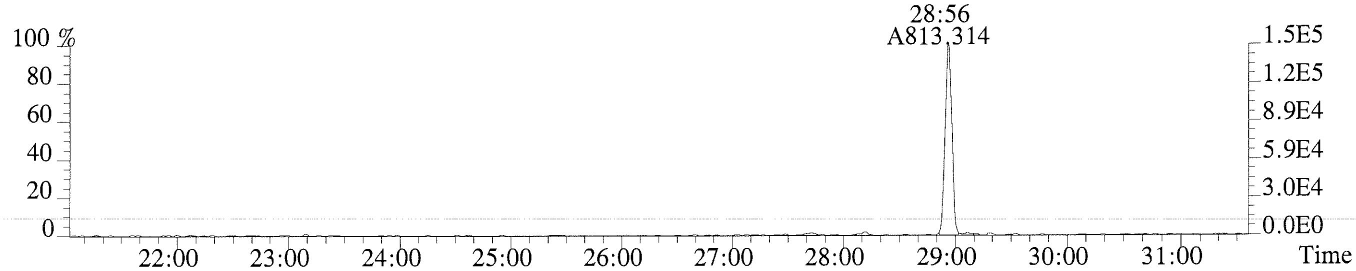
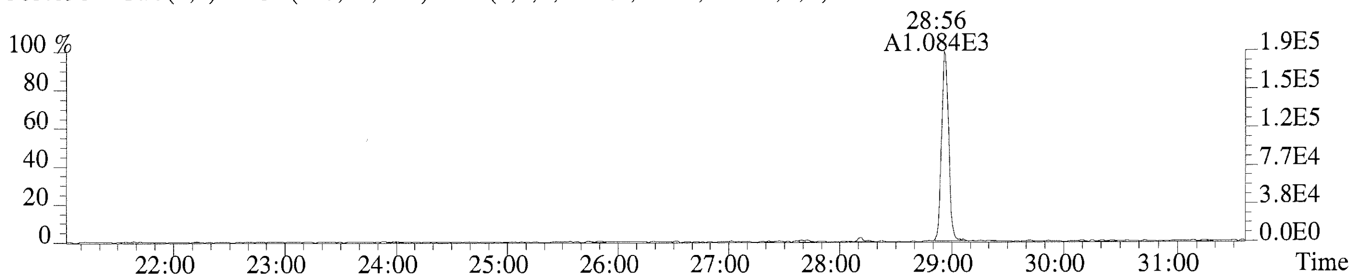
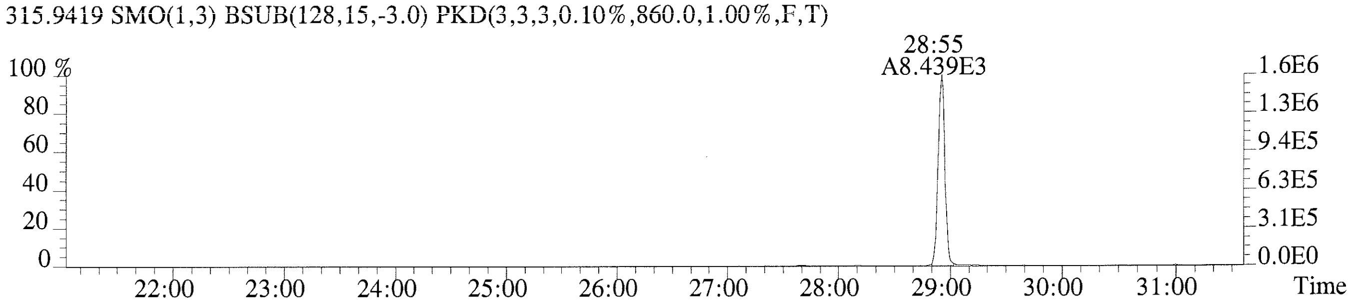
File:P173841 #1-815 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



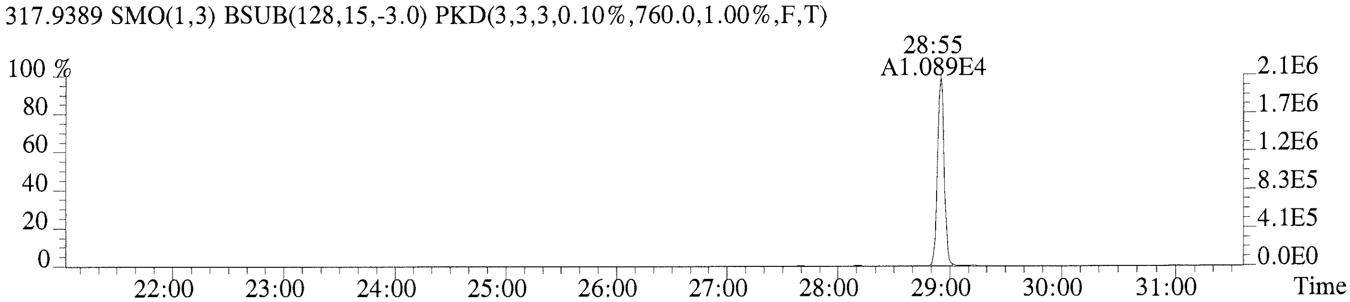
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



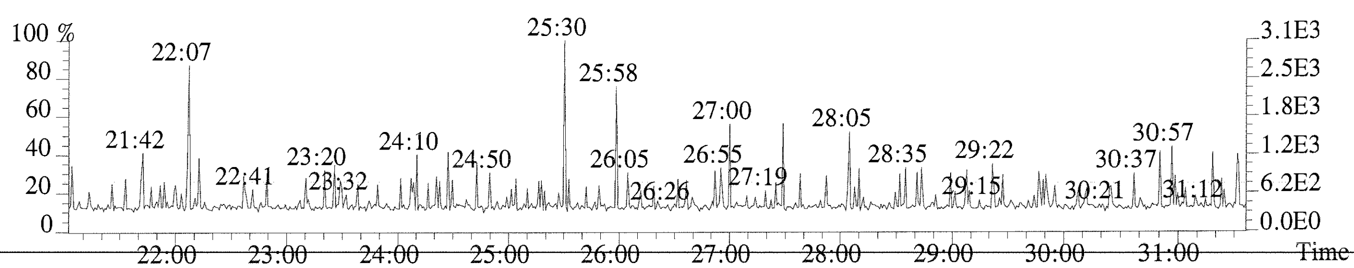
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



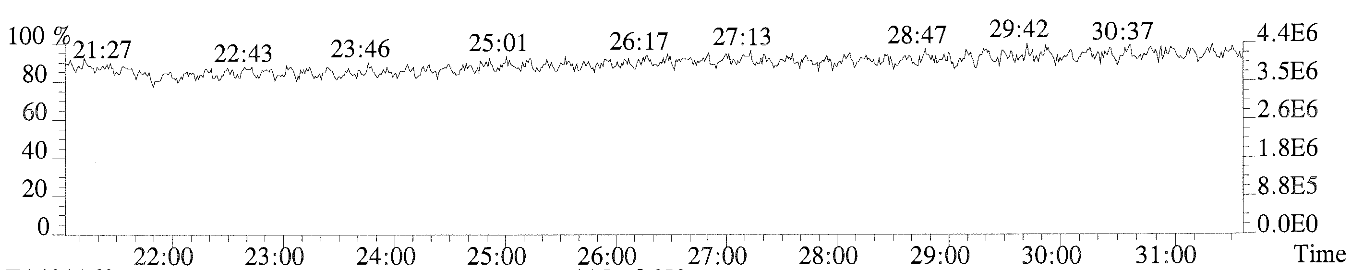
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

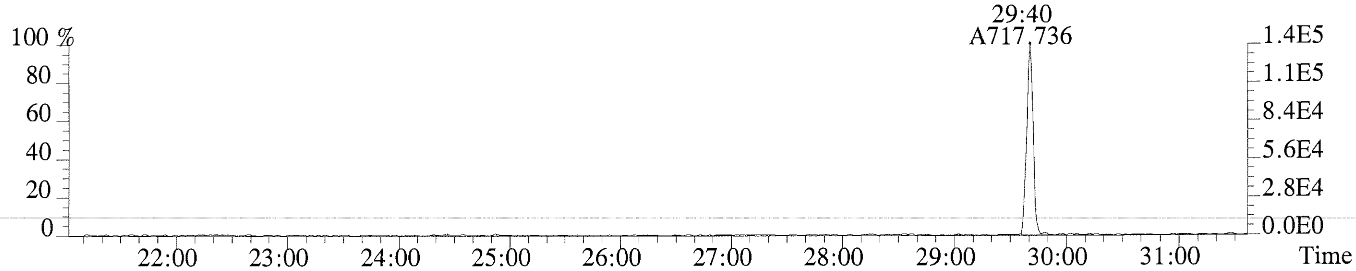


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

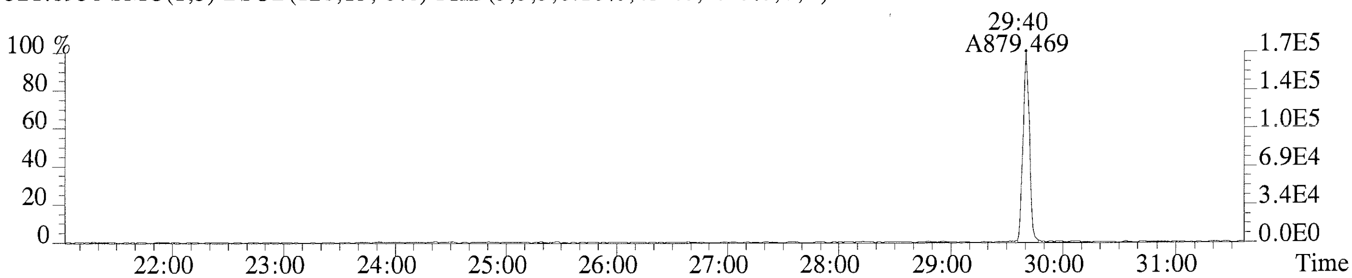


File:P173841 #1-815 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

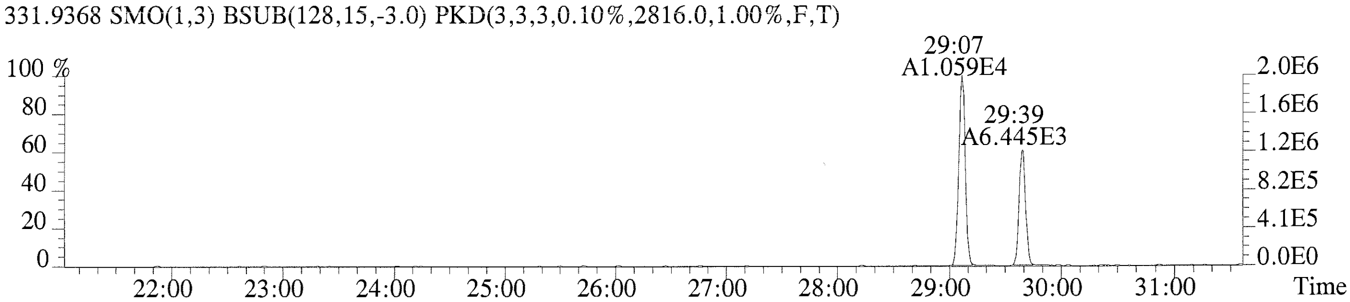
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



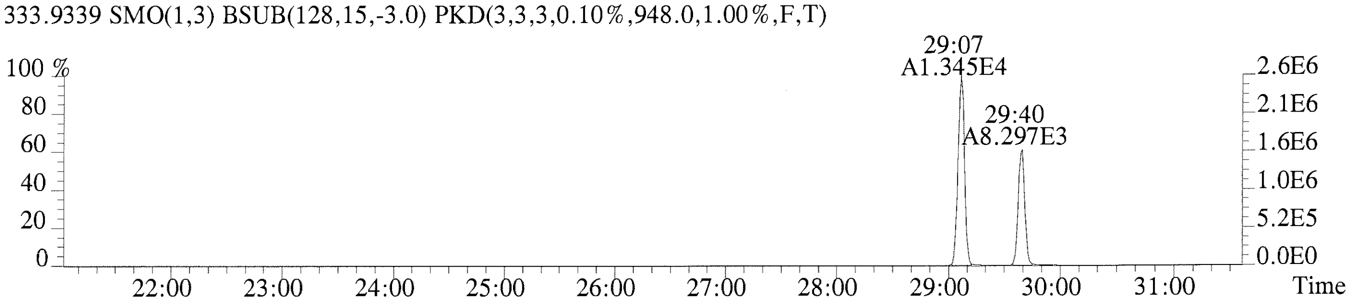
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



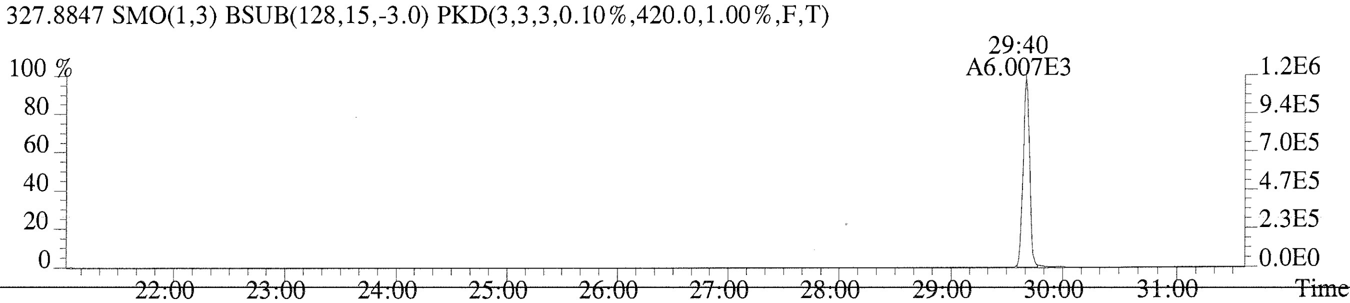
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2816.0,1.00%,F,T)



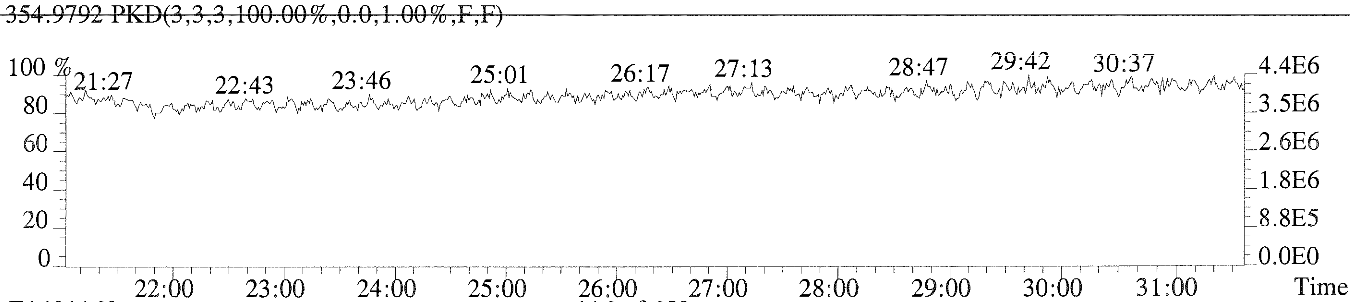
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



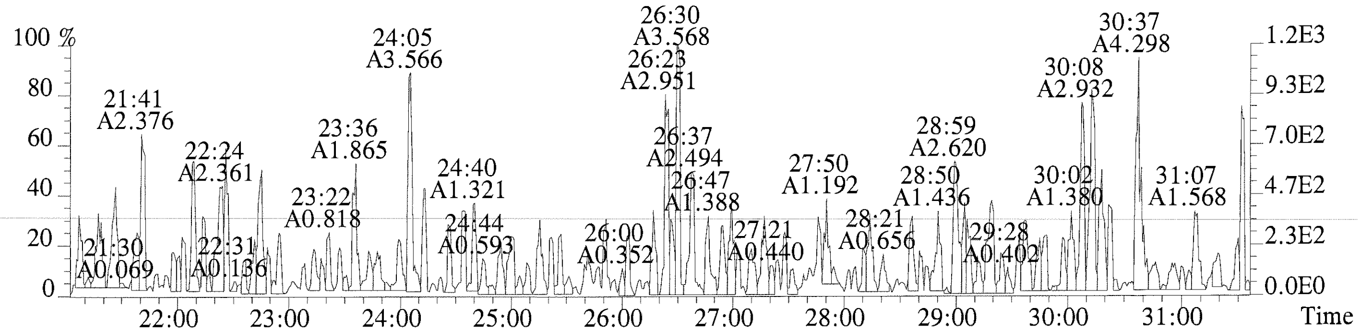
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



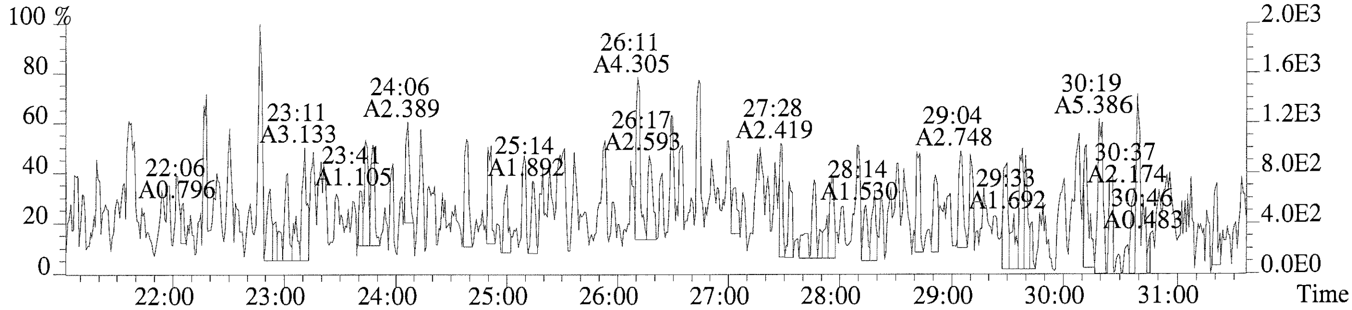
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



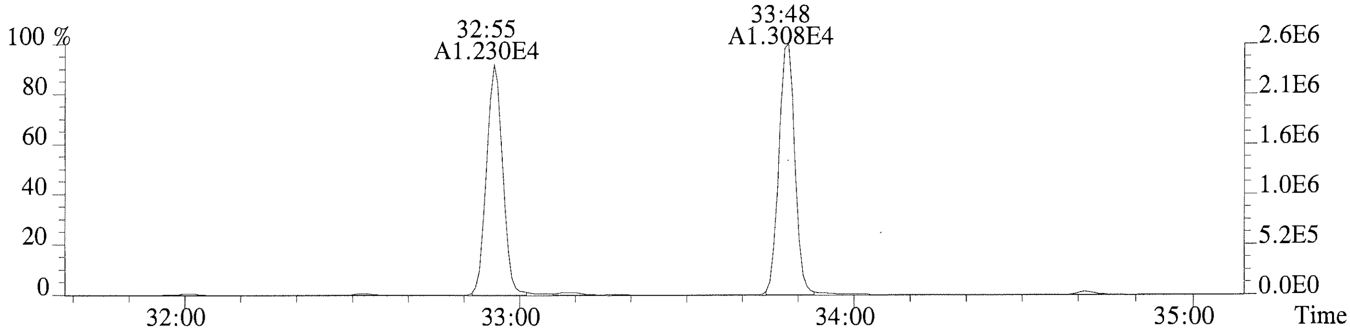
File:P173841 #1-815 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



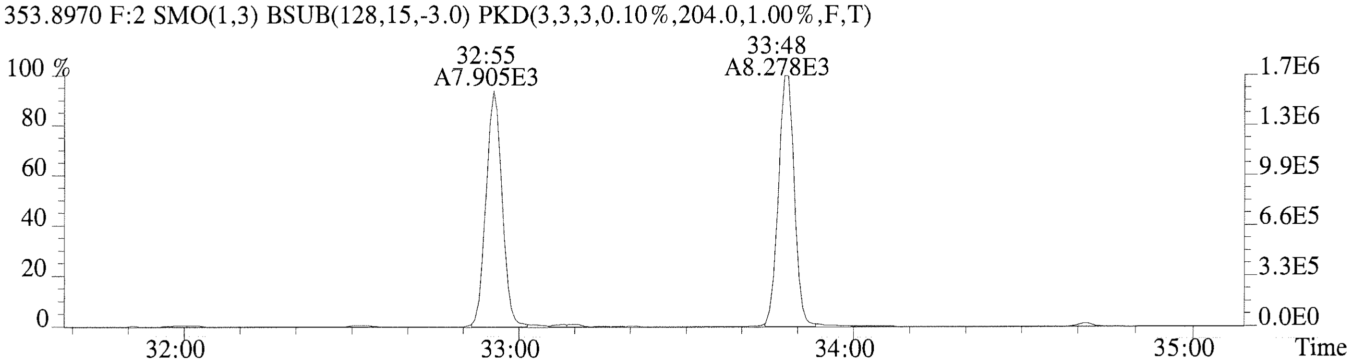
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



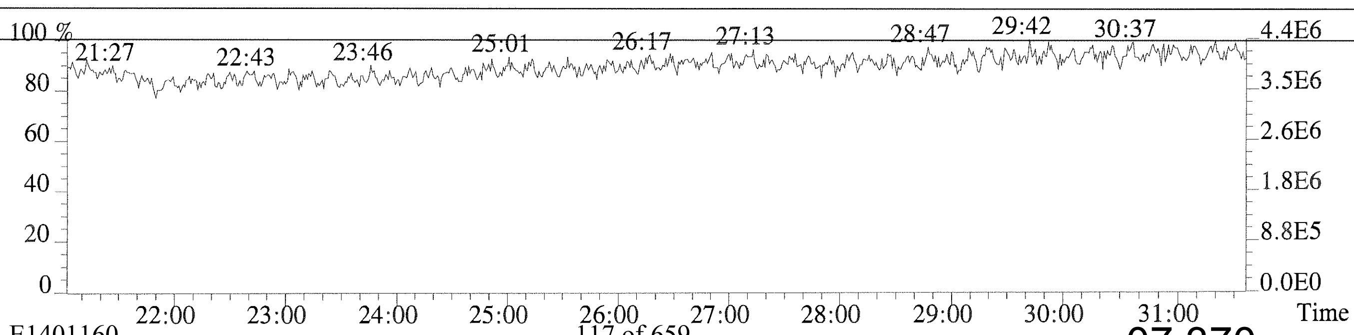
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)

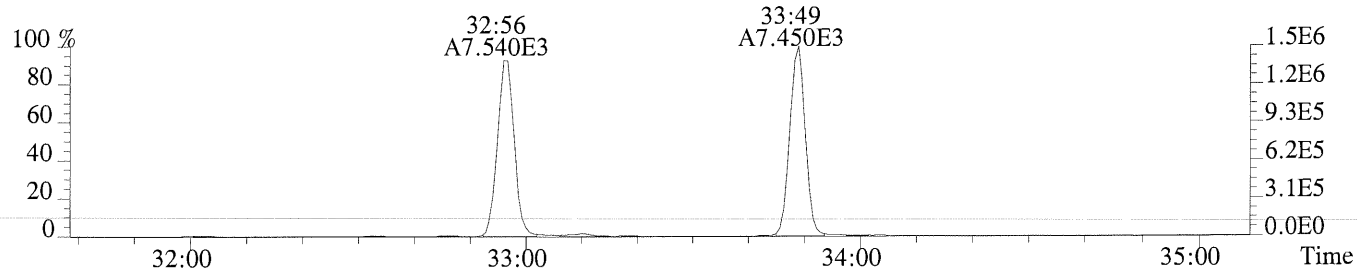


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

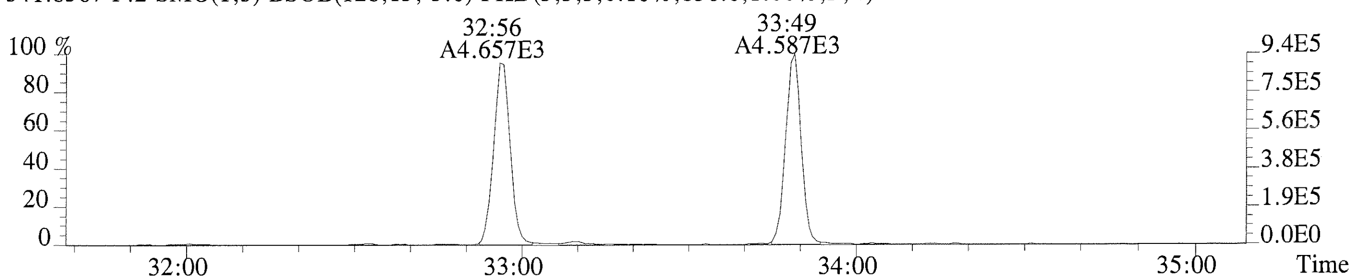


File:P173841 #1-319 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

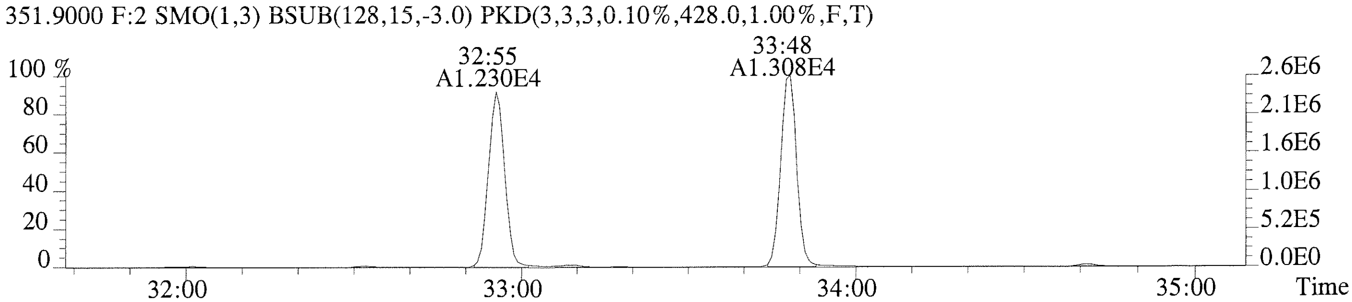
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,104.0,1.00%,F,T)



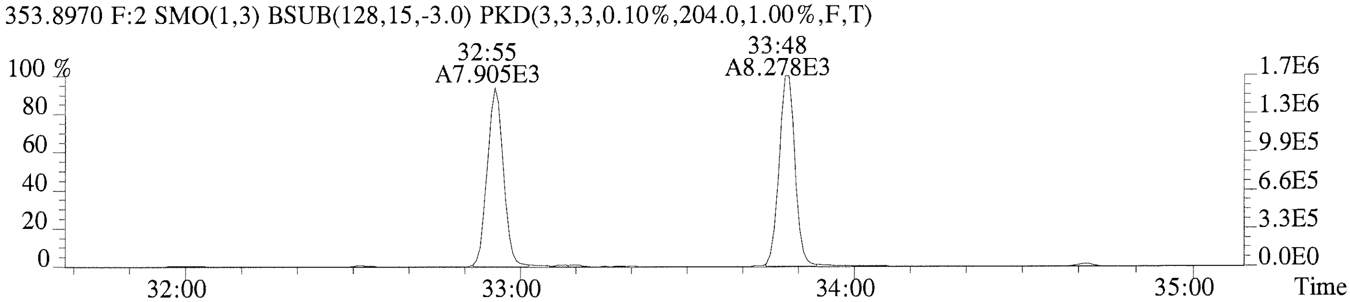
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



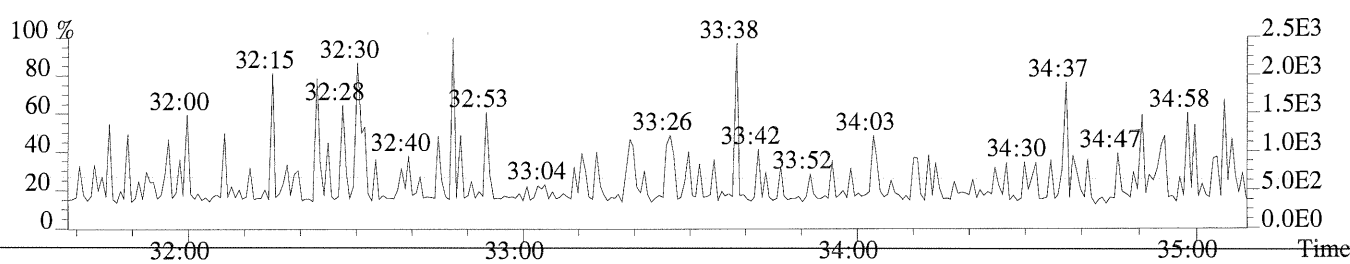
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



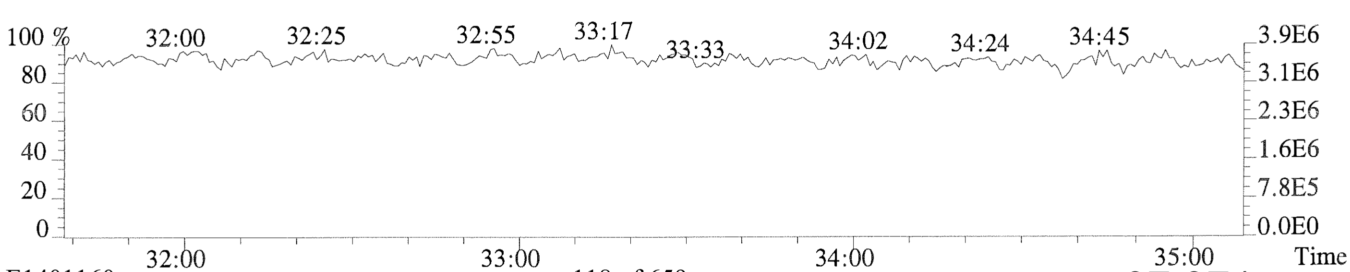
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



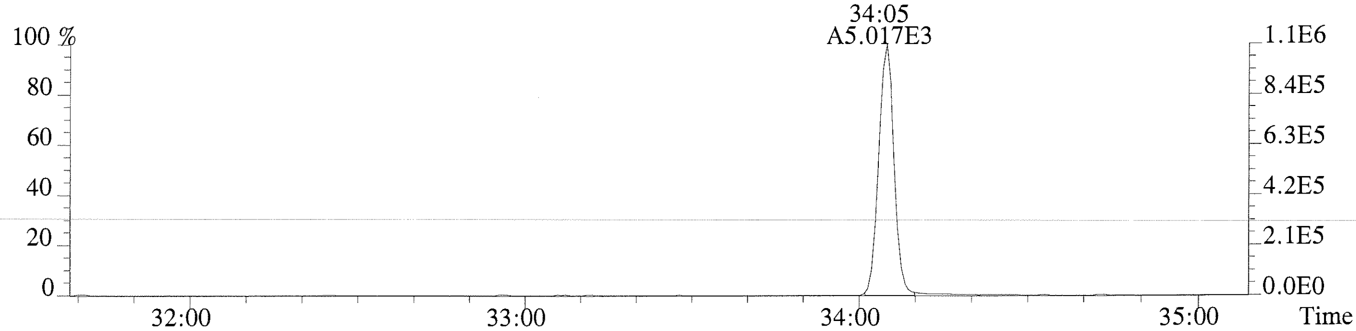
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



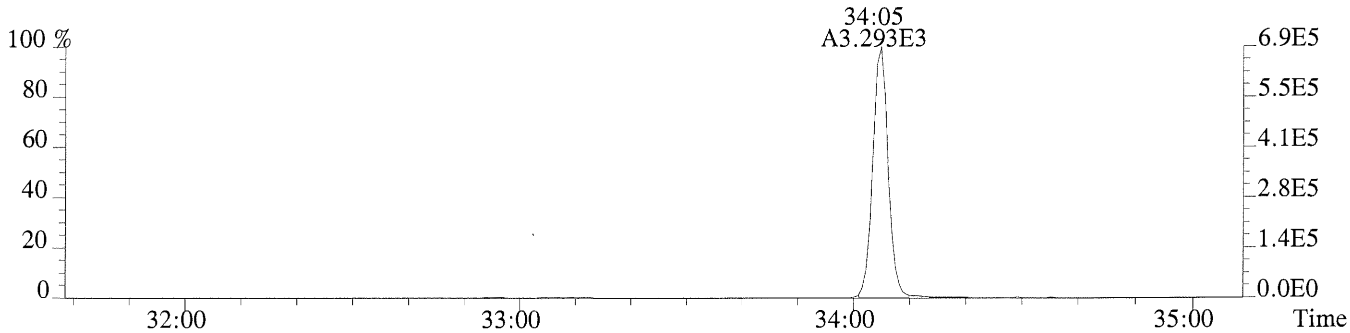
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



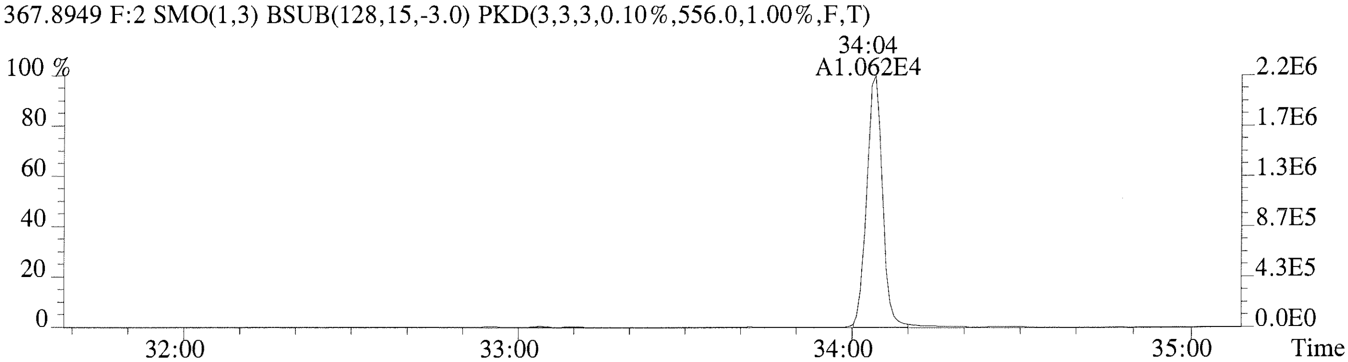
File:P173841 #1-319 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



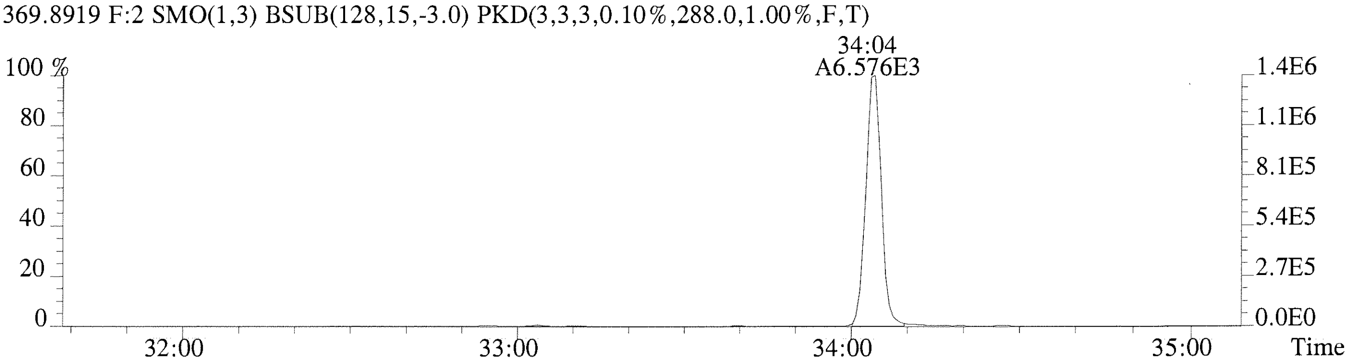
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



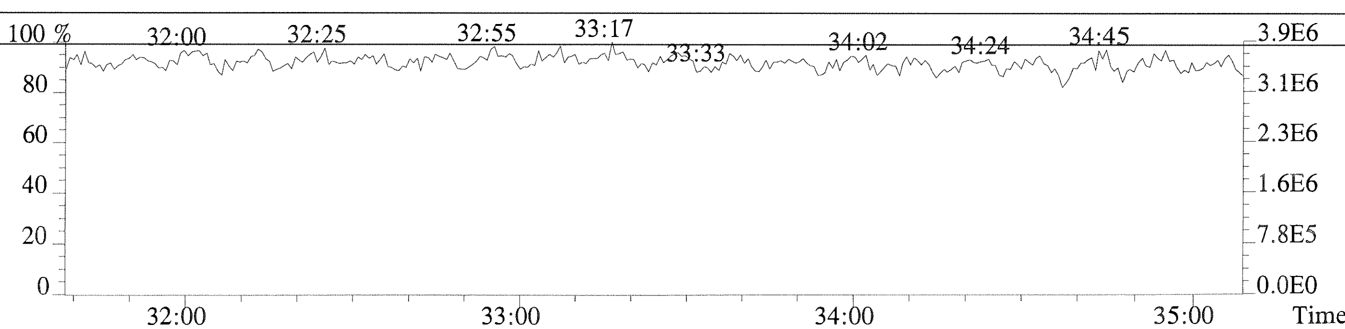
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

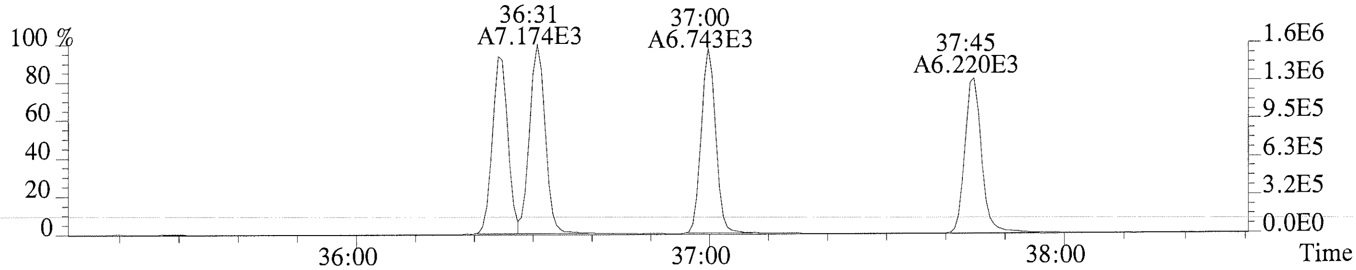


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

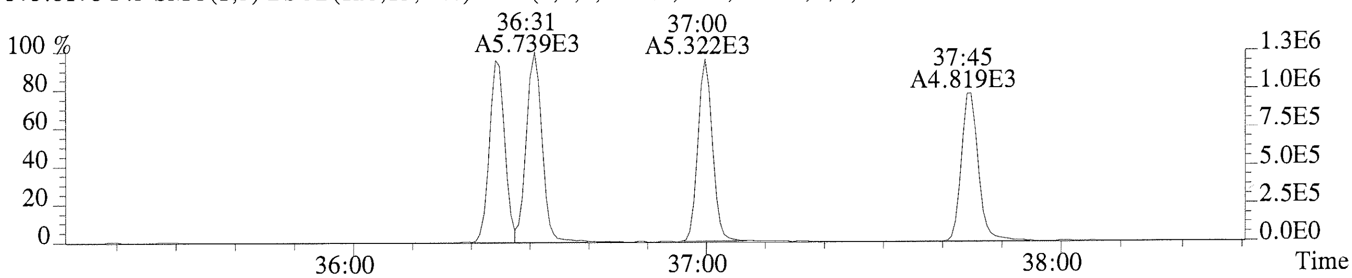


File:P173841 #1-302 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

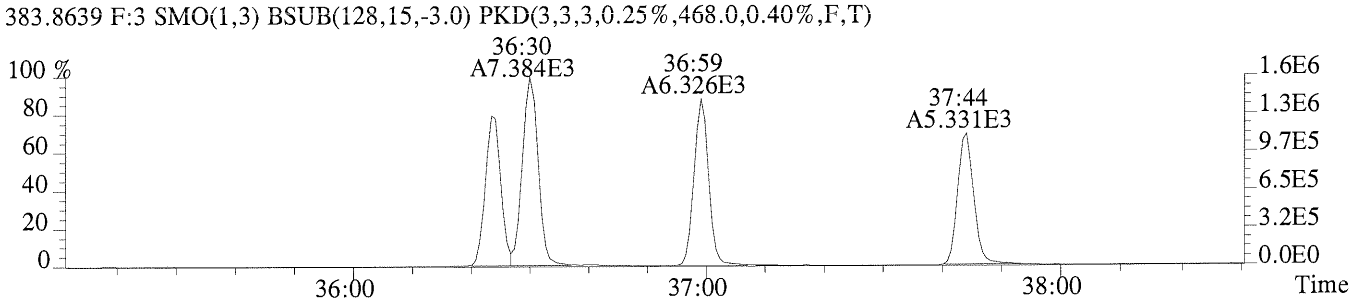
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



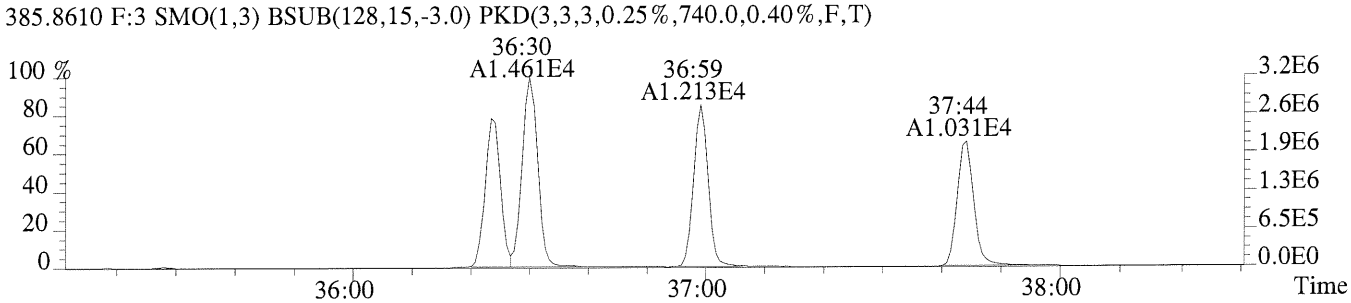
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52.0,0.40%,F,T)



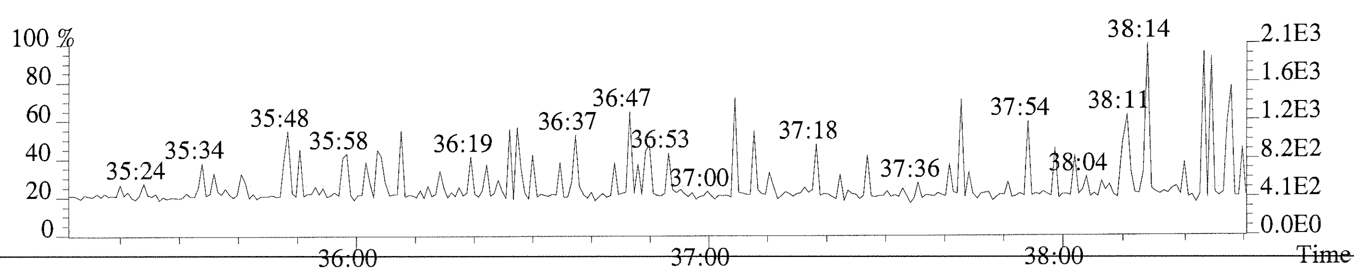
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



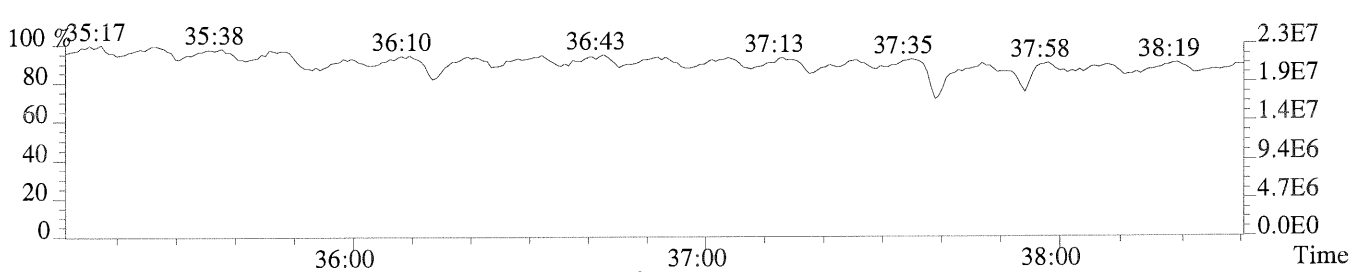
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

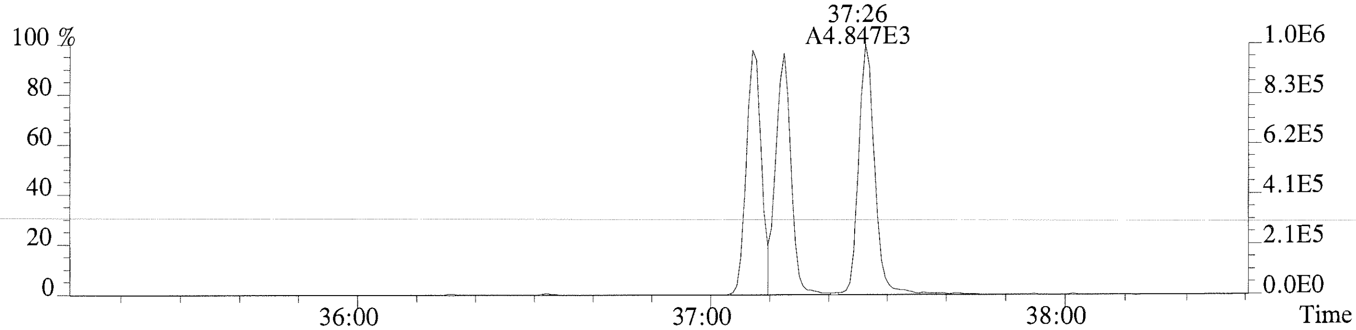


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

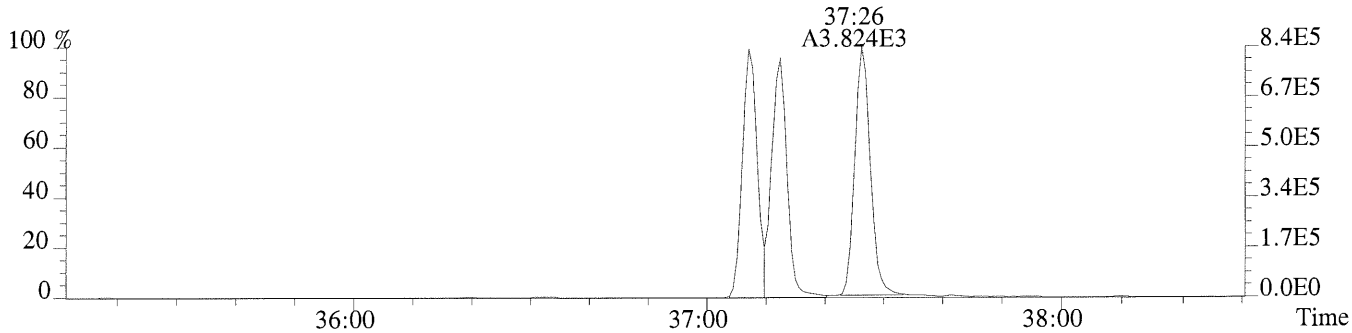


File:P173841 #1-302 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

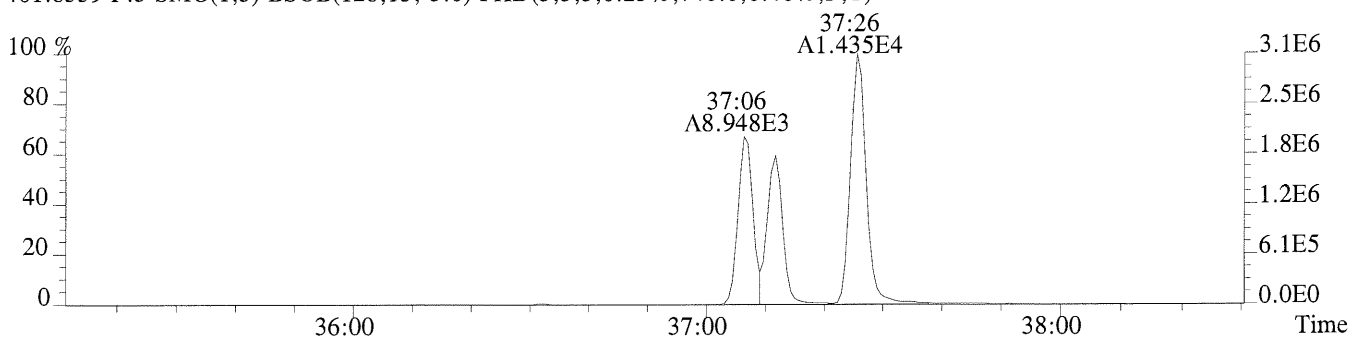
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



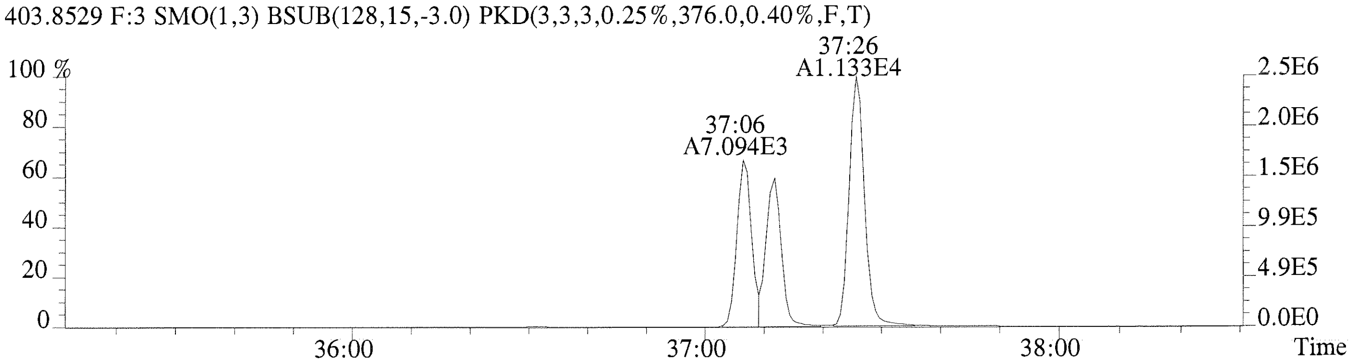
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



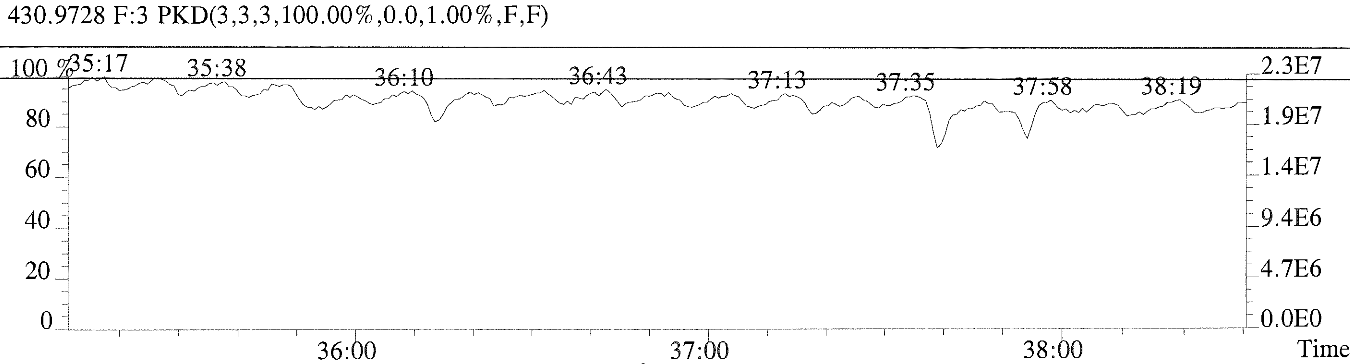
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

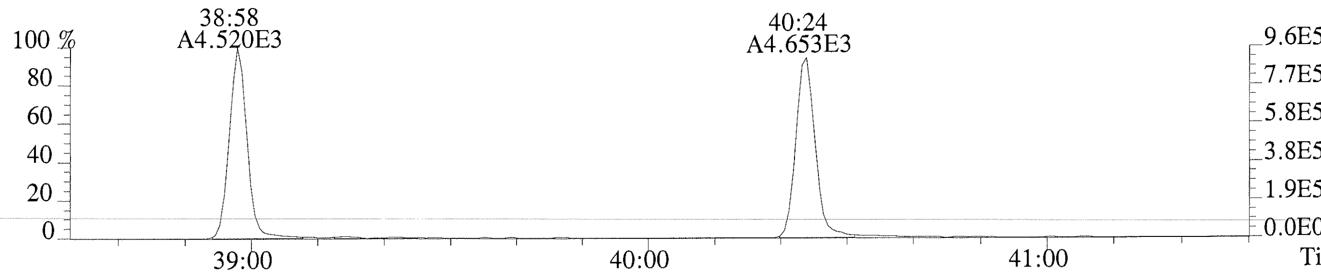


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

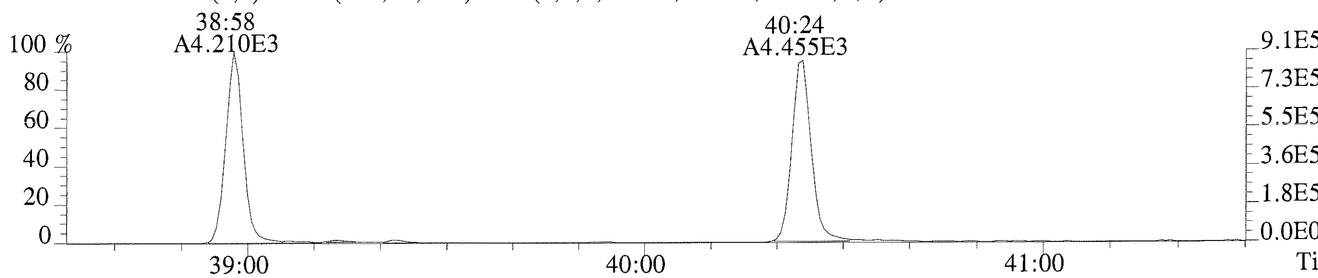


File:P173841 #1-269 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

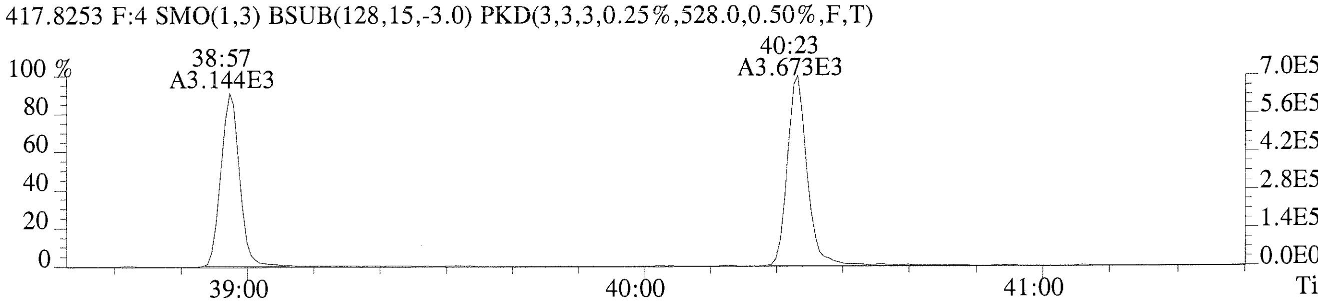
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.50%,F,T)



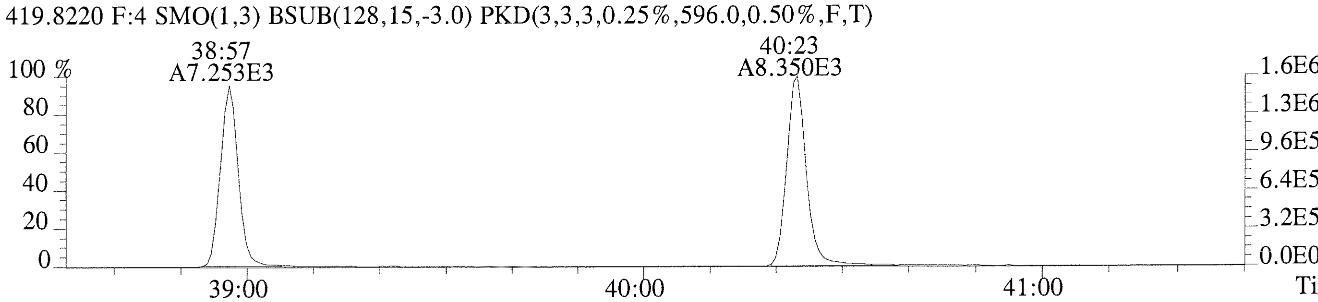
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.50%,F,T)



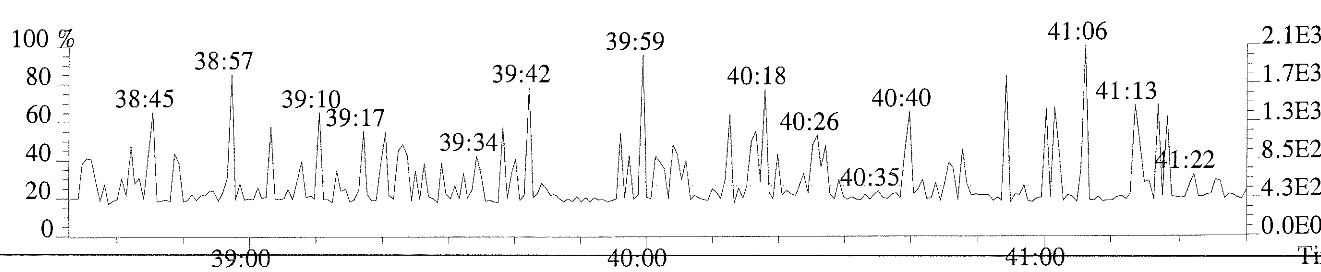
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.50%,F,T)



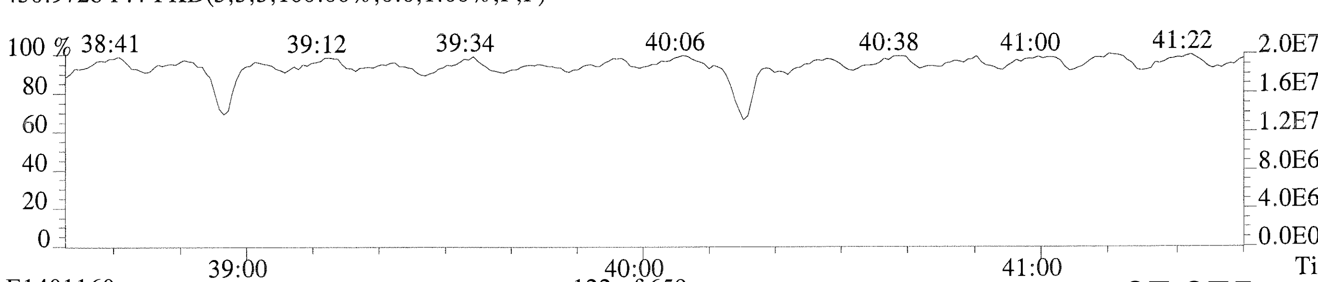
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

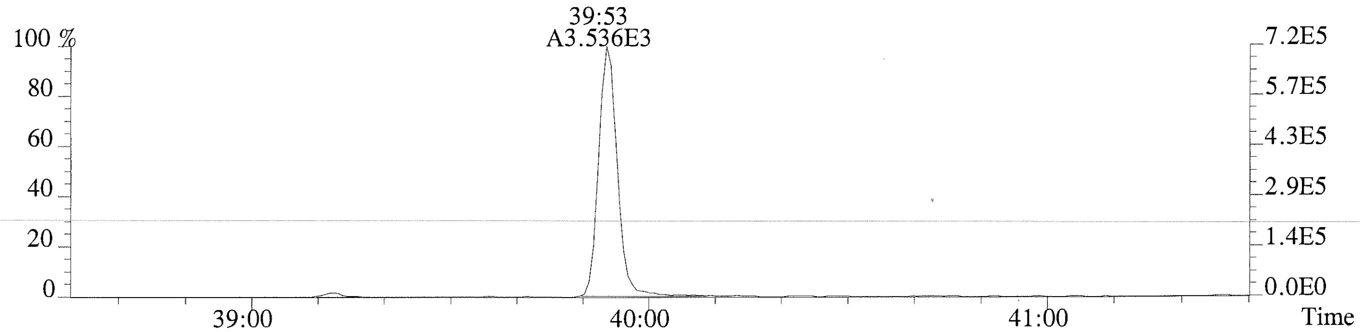


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

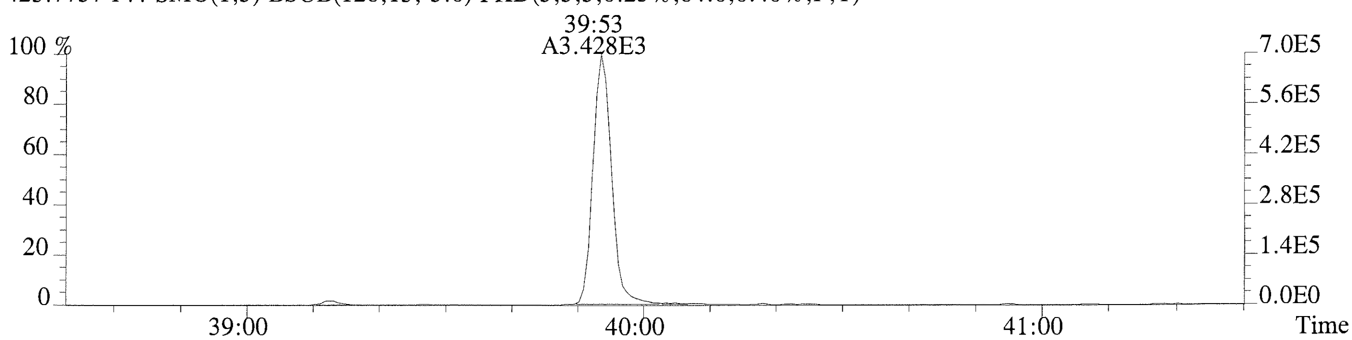


File:P173841 #1-269 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02

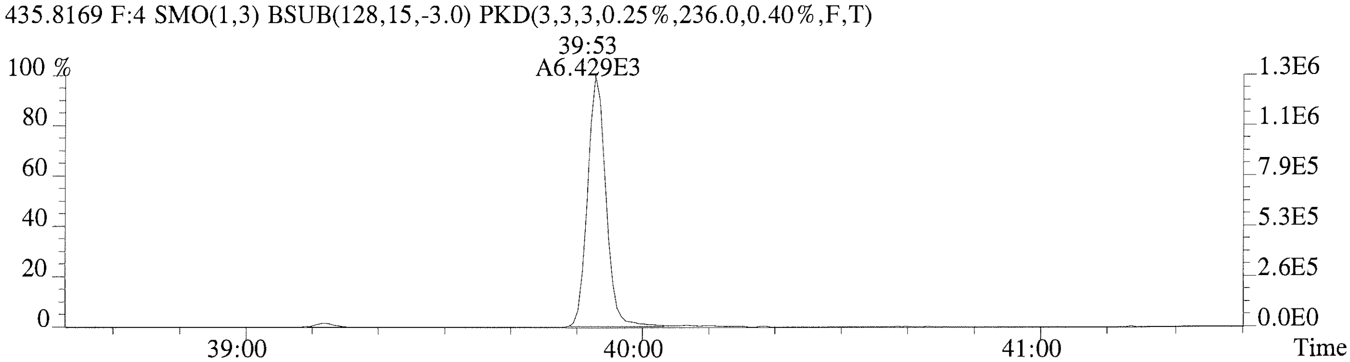
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



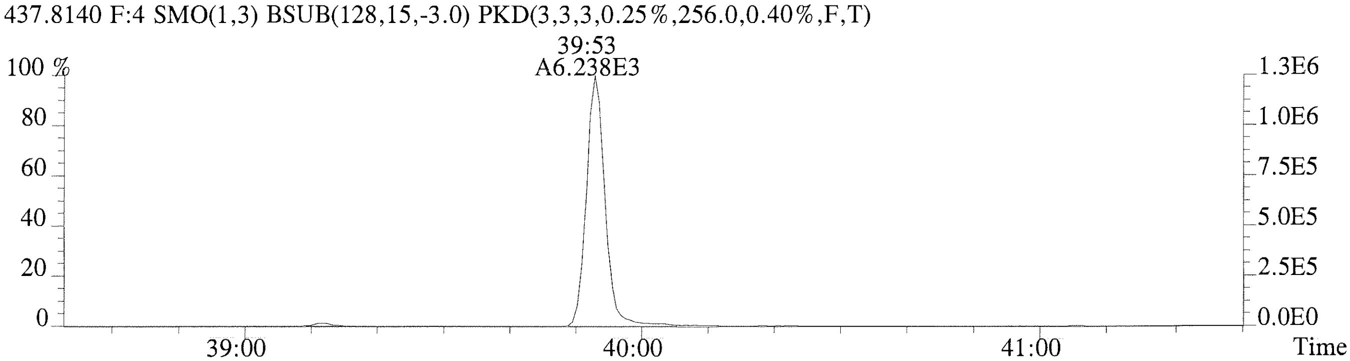
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,84.0,0.40%,F,T)



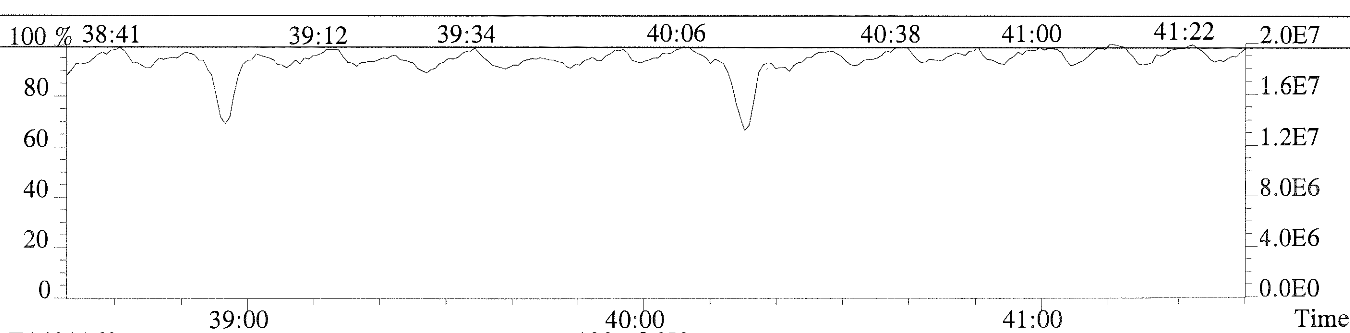
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



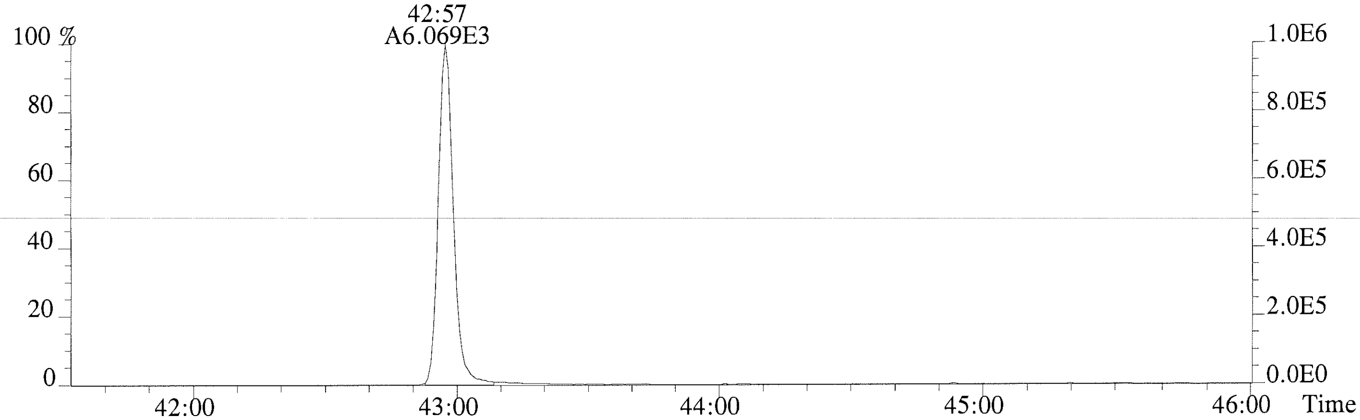
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



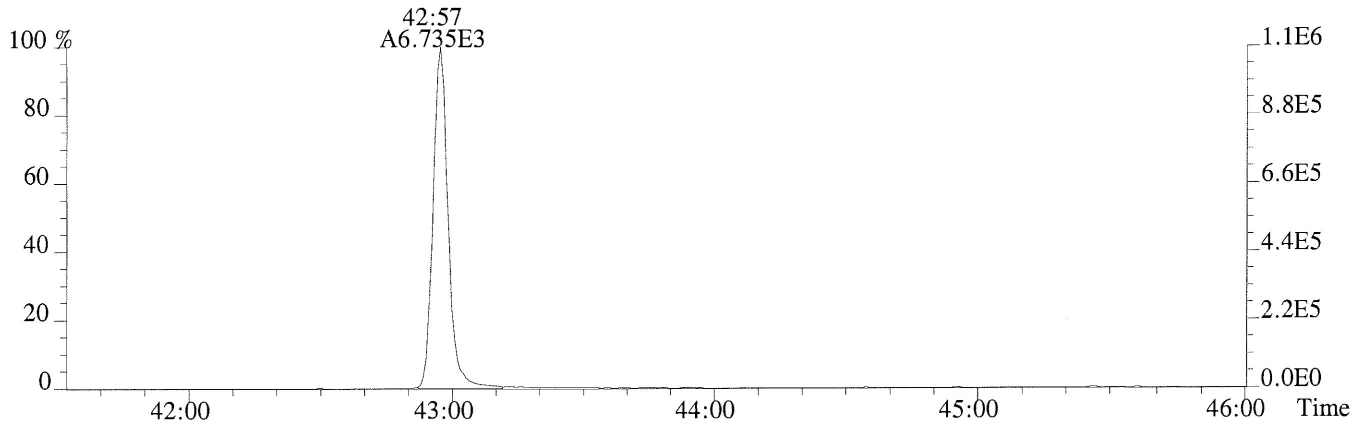
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



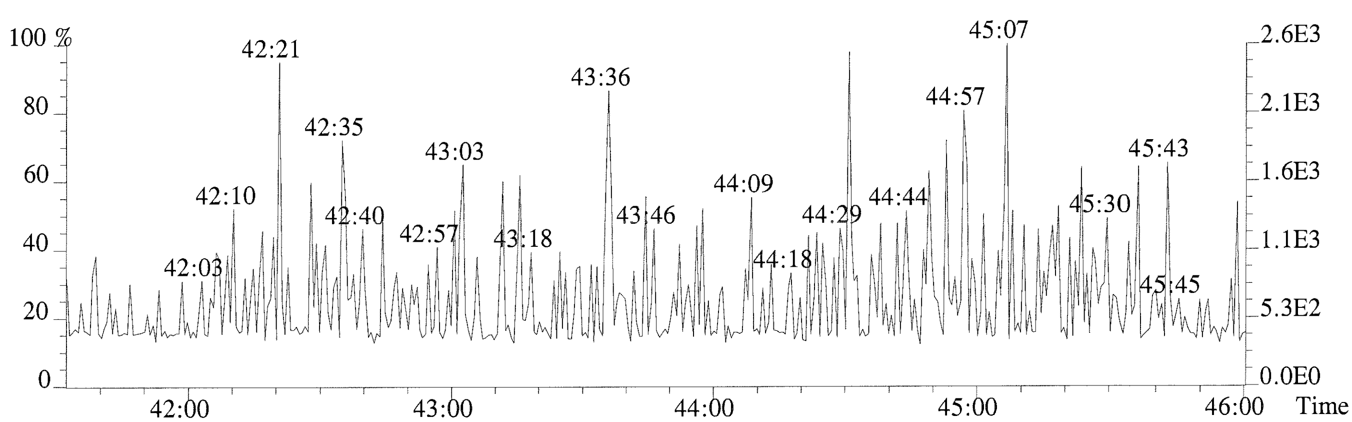
File:P173841 #1-411 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



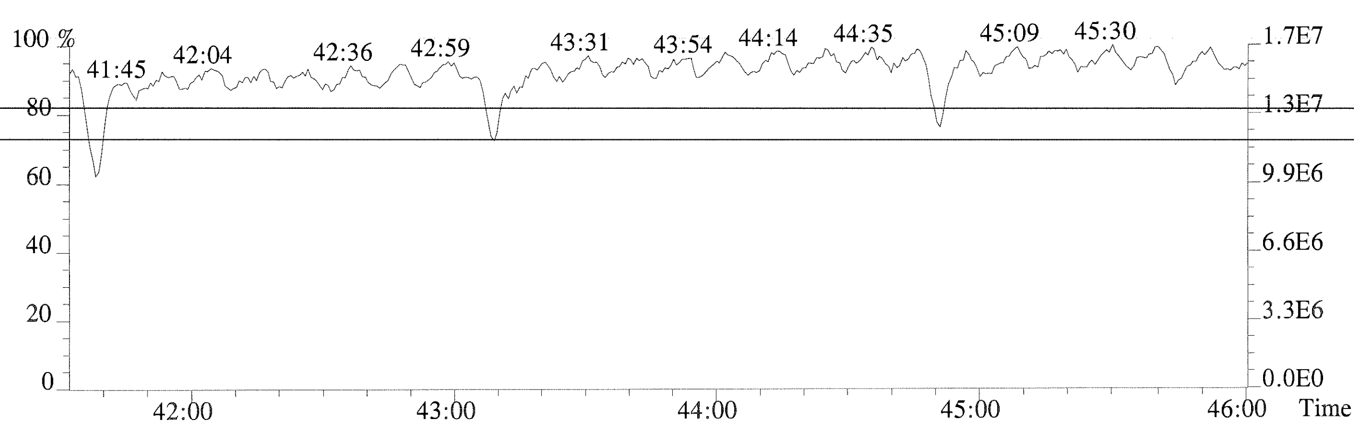
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



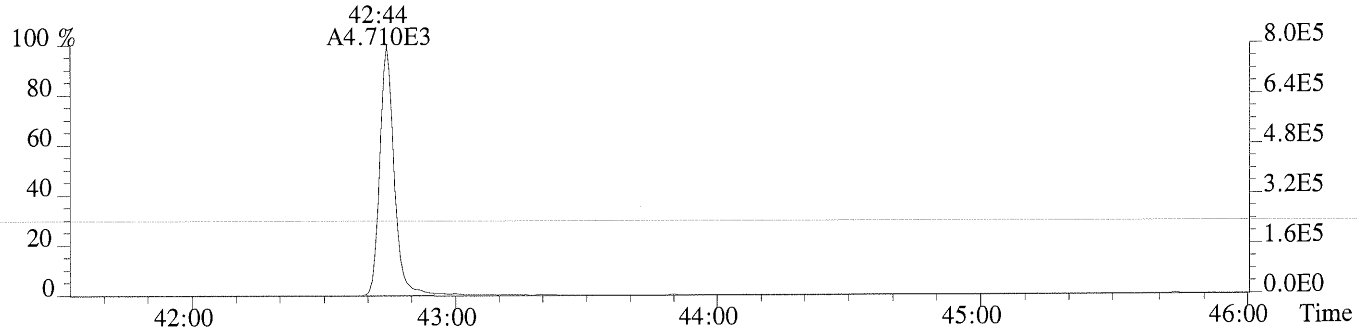
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



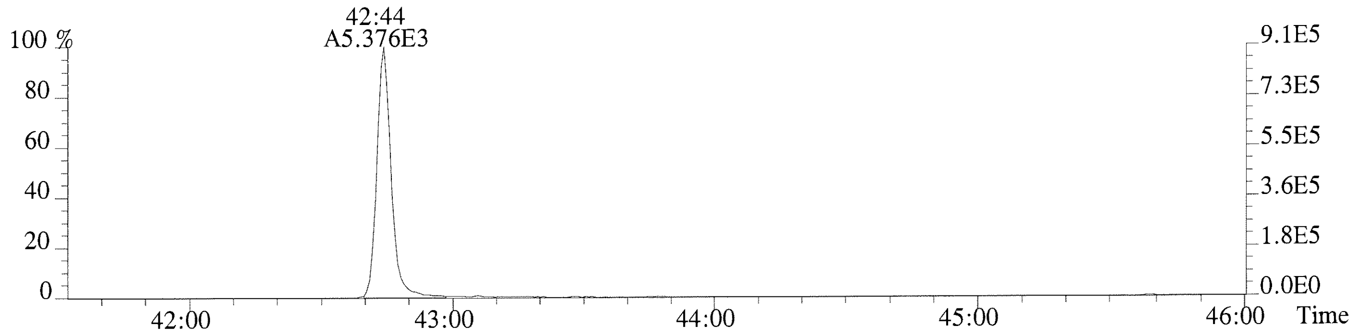
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



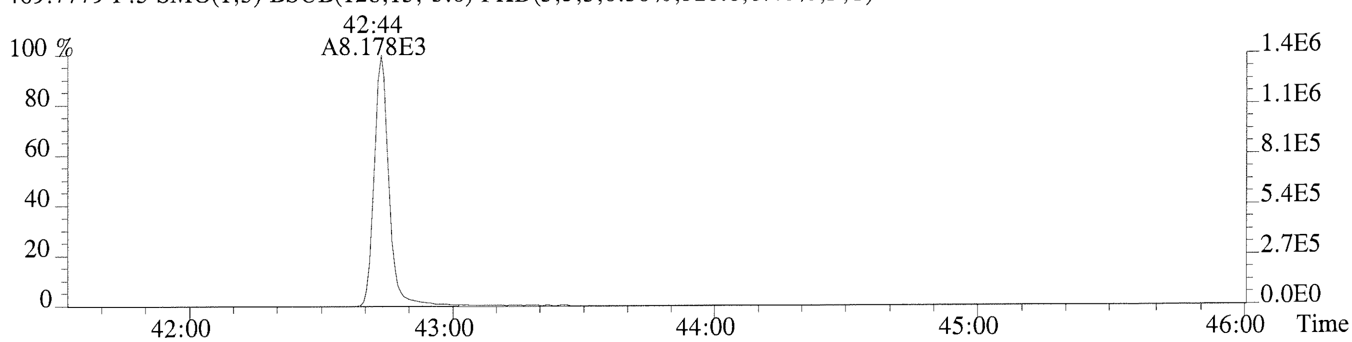
File:P173841 #1-411 Acq: 4-OCT-2014 06:16:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400606-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



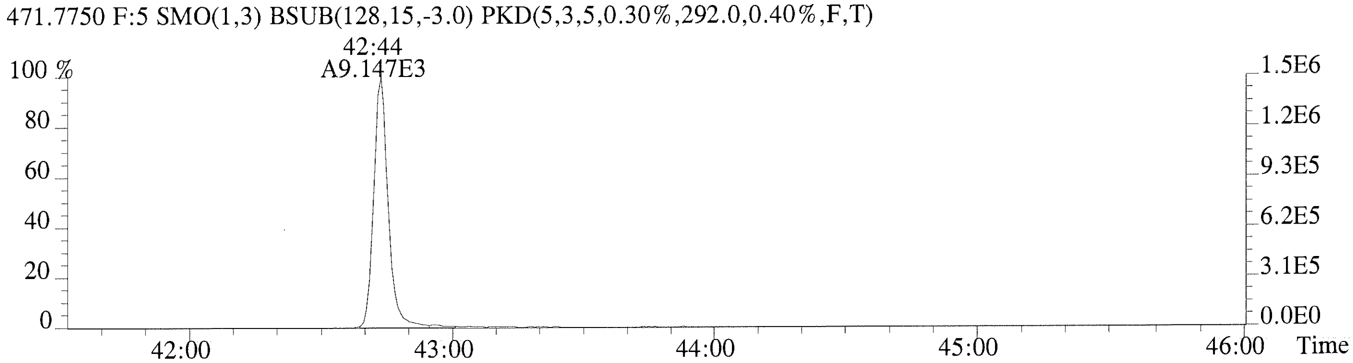
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



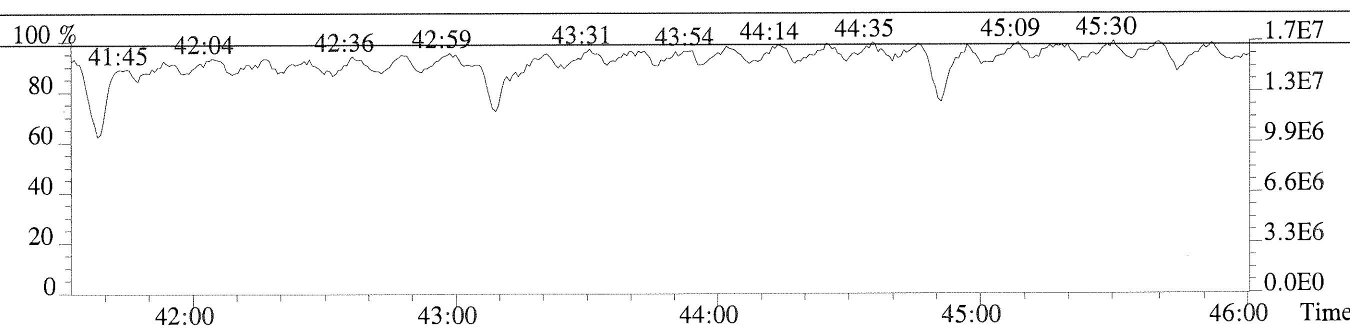
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
METHOD BLANK

Run #4 Filename P174027 Samp: 1 Inj: 1 Acquired: 11-OCT-14 04:31:40
Processed: 13-OCT-14 08:18:17 Sample ID: EQ1400620-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.905
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.091
3	Unk	2,3,4,7,8-PeCDF	33:31	7.323e+00	8.727e+00	0.84	no	no	1.029
4	Unk	1,2,3,4,7,8-HxCDF	36:08	6.347e+00	3.632e+00	1.75	no	no	1.348
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.257
6	Unk	2,3,4,6,7,8-HxCDF	36:44	7.850e+00	6.130e+00	1.28	yes	yes	1.252
7	Unk	1,2,3,7,8,9-HxCDF	37:29	7.663e+00	7.010e+00	1.09	yes	yes	1.273
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.553
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.012e+01	1.215e+01	0.83	no	no	1.441
10	Unk	OCDF	42:38	1.600e+01	1.399e+01	1.14	no	no	1.375
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	0.969
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:52	3.967e+00	5.446e+00	0.73	no	yes	1.024
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.009
15	Unk	1,2,3,7,8,9-HxCDD	37:09	6.845e+00	3.807e+00	1.80	no	no	1.072
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	1.114e+01	9.289e+00	1.20	yes	no	1.031
17	Unk	OCDD	42:24	1.507e+01	2.076e+01	0.73	no	no	1.098
18	IS	13C-2,3,7,8-TCDF	28:31	9.916e+03	1.266e+04	0.78	yes	no	1.349
19	IS	13C-1,2,3,7,8-PeCDF	32:37	1.513e+04	9.655e+03	1.57	yes	no	1.385
20	IS	13C-2,3,4,7,8-PeCDF	33:30	1.477e+04	9.289e+03	1.59	yes	no	1.370
21	IS	13C-1,2,3,4,7,8-HxCDF	36:07	7.518e+03	1.423e+04	0.53	yes	no	1.148
22	IS	13C-1,2,3,6,7,8-HxCDF	36:13	7.746e+03	1.464e+04	0.53	yes	no	1.269
23	IS	13C-2,3,4,6,7,8-HxCDF	36:43	7.060e+03	1.379e+04	0.51	yes	no	1.197
24	IS	13C-1,2,3,7,8,9-HxCDF	37:28	6.609e+03	1.263e+04	0.52	yes	no	0.993
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	4.365e+03	9.810e+03	0.44	yes	no	0.873
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	4.234e+03	9.692e+03	0.44	yes	no	0.746
27	IS	13C-2,3,7,8-TCDD	29:16	7.335e+03	9.484e+03	0.77	yes	no	0.981
28	IS	13C-1,2,3,7,8-PeCDD	33:46	1.141e+04	7.153e+03	1.60	yes	no	1.004
29	IS	13C-1,2,3,4,7,8-HxCDD	36:50	9.094e+03	7.107e+03	1.28	yes	no	0.937
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	9.341e+03	7.424e+03	1.26	yes	no	0.931
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	7.603e+03	7.232e+03	1.05	yes	no	0.810
32	IS	13C-OCDD	42:24	8.788e+03	9.856e+03	0.89	yes	no	0.593
33	RS/RT	13C-1,2,3,4-TCDD	28:42	9.366e+03	1.204e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	1.299e+04	1.008e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:17	6.834e+03				no	1.005

$$\text{OCDD} = \frac{(1.507e{+}01 + 2.076e{+}01)\ \times\ 4000\ \text{pg}\ \times\ 1}{(8.788e{+}03 + 9.856e{+}03)\ \times\ \quad \times\ \quad \times\ 1.098} =$$

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
METHOD BLANK

Run #4 Filename P174027 Samp: 1 Inj: 1 Acquired: 11-OCT-14 04:31:40
Processed: 13-OCT-14 08:18:171 LAB. ID: EQ1400620-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.20e+02	*	*	5.28e+02	*
2	1,2,3,7,8-PeCDF	*	7.60e+01	*	*	5.36e+02	*
3	2,3,4,7,8-PeCDF	1.77e+03	7.60e+01	2.3e+01	2.24e+03	5.36e+02	4.2e+00
4	1,2,3,4,7,8-HxCDF	1.44e+03	1.04e+02	1.4e+01	1.13e+03	9.60e+01	1.2e+01
5	1,2,3,6,7,8-HxCDF	*	1.04e+02	*	*	9.60e+01	*
6	2,3,4,6,7,8-HxCDF	2.22e+03	1.04e+02	2.1e+01	1.18e+03	9.60e+01	1.2e+01
7	1,2,3,7,8,9-HxCDF	1.26e+03	1.04e+02	1.2e+01	1.43e+03	9.60e+01	1.5e+01
8	1,2,3,4,6,7,8-HpCDF	*	2.16e+02	*	*	2.96e+02	*
9	1,2,3,4,7,8,9-HpCDF	2.16e+03	2.16e+02	1.0e+01	2.30e+03	2.96e+02	7.8e+00
10	OCDF	2.95e+03	8.80e+01	3.4e+01	2.92e+03	3.48e+02	8.4e+00
11	2,3,7,8-TCDD	*	1.64e+02	*	*	2.92e+02	*
12	1,2,3,7,8-PeCDD	*	3.00e+02	*	*	5.60e+01	*
13	1,2,3,4,7,8-HxCDD	8.27e+02	1.64e+02	5.0e+00	1.25e+03	9.60e+01	1.3e+01
14	1,2,3,6,7,8-HxCDD	*	1.64e+02	*	*	9.60e+01	*
15	1,2,3,7,8,9-HxCDD	1.64e+03	1.64e+02	1.0e+01	1.02e+03	9.60e+01	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	2.32e+03	1.00e+02	2.3e+01	2.26e+03	1.12e+02	2.0e+01
17	OCDD	2.53e+03	8.80e+01	2.9e+01	3.65e+03	4.04e+02	9.0e+00
18	13C-2,3,7,8-TCDF	1.78e+06	7.88e+02	2.3e+03	2.30e+06	7.64e+02	3.0e+03
19	13C-1,2,3,7,8-PeCDF	2.90e+06	2.76e+02	1.1e+04	1.85e+06	3.44e+02	5.4e+03
20	13C-2,3,4,7,8-PeCDF	3.00e+06	2.76e+02	1.1e+04	1.87e+06	3.44e+02	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.68e+06	5.04e+02	3.3e+03	3.15e+06	4.40e+02	7.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.70e+06	5.04e+02	3.4e+03	3.28e+06	4.40e+02	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.64e+06	5.04e+02	3.3e+03	3.17e+06	4.40e+02	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.45e+06	5.04e+02	2.9e+03	2.75e+06	4.40e+02	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.81e+05	5.92e+02	1.7e+03	2.22e+06	8.68e+02	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.73e+05	5.92e+02	1.5e+03	1.94e+06	8.68e+02	2.2e+03
27	13C-2,3,7,8-TCDD	1.39e+06	1.88e+03	7.4e+02	1.80e+06	9.44e+02	1.9e+03
28	13C-1,2,3,7,8-PeCDD	2.32e+06	2.08e+02	1.1e+04	1.48e+06	7.60e+01	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	2.07e+06	6.96e+02	3.0e+03	1.64e+06	2.28e+02	7.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.07e+06	6.96e+02	3.0e+03	1.66e+06	2.28e+02	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.63e+06	2.60e+02	6.3e+03	1.57e+06	8.80e+01	1.8e+04
32	13C-OCDD	1.58e+06	1.40e+02	1.1e+04	1.81e+06	4.80e+01	3.8e+04
33	13C-1,2,3,4-TCDD	1.70e+06	1.88e+03	9.0e+02	2.23e+06	9.44e+02	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.84e+06	6.96e+02	4.1e+03	2.24e+06	2.28e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	1.26e+06	4.52e+02	2.8e+03			

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Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400620-01
Entry: 41 Totals Name: Total Hexa-Furans

Run: 4 File: P174027 Sample: 1 Injection: 1 Function: 3
Llim: 34:58 Ulim: 37:41
Acquired: 11-OCT-14 04:31:40 Processed: 13-OCT-14 08:18:17
Mass: 373.8210 375.8180 Tot Response: 2.87e+01 RRF: 1.282

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:44	7.85e+00	6.13e+00	1.28	yes	1.40e+01	2,3,4,6,7,8-HxCDF	n	y
2	37:29	7.66e+00	7.01e+00	1.09	yes	1.47e+01	1,2,3,7,8,9-HxCDF	y	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

LabID: EQ1400620-01
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 4 File: P174027 Sample: 1 Injection: 1 Function: 4
Llim: 38:52 Ulim: 39:48
Acquired: 11-OCT-14 04:31:40 Processed: 13-OCT-14 08:18:17
Mass: 423.7770 425.7740 Tot Response: 2.04e+01 RRF: 1.031

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:38	1.11e+01	9.29e+00	1.20	yes	2.04e+01	1,2,3,4,6,7,8-HpCDD	n	n

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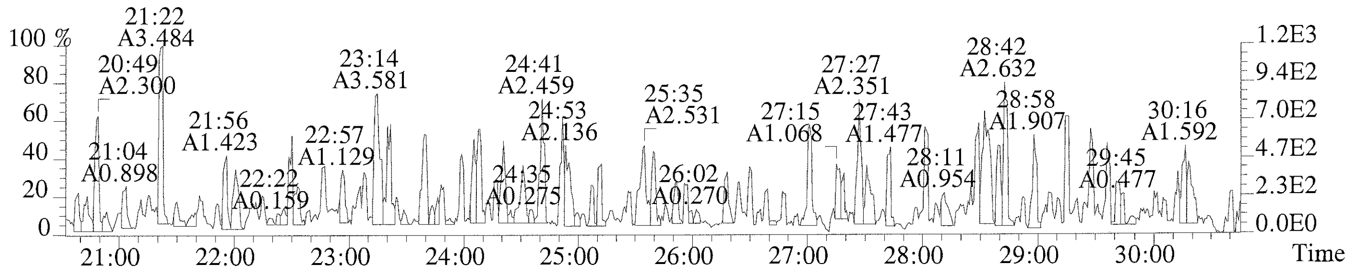
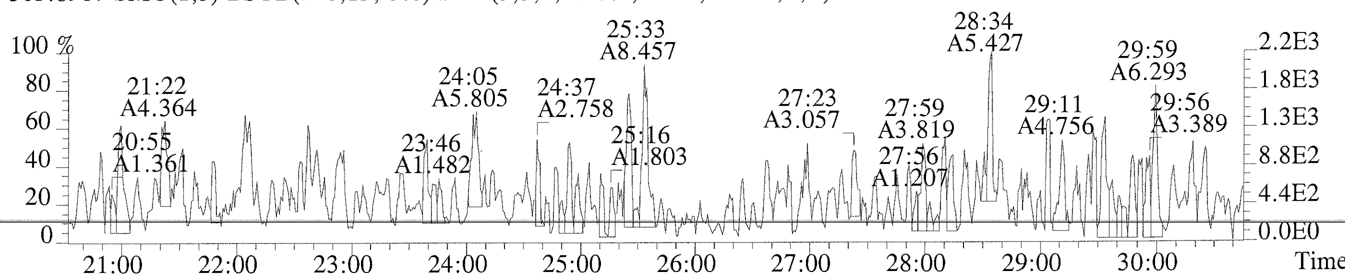
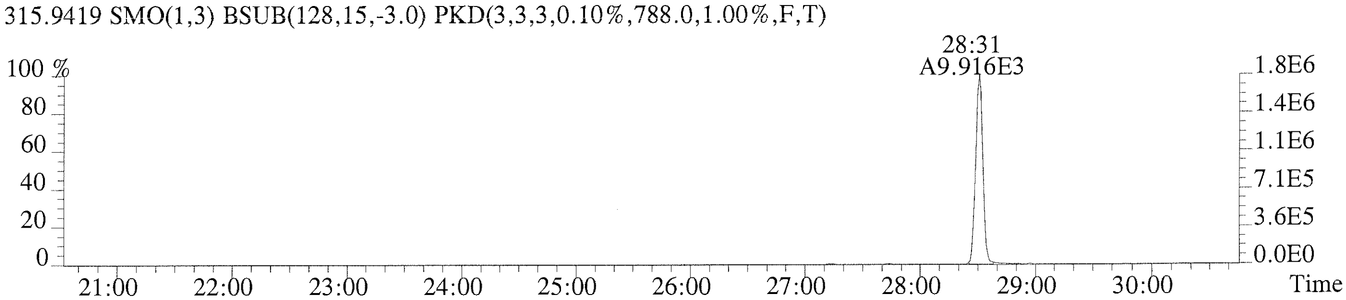
File:P174027 #1-788 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



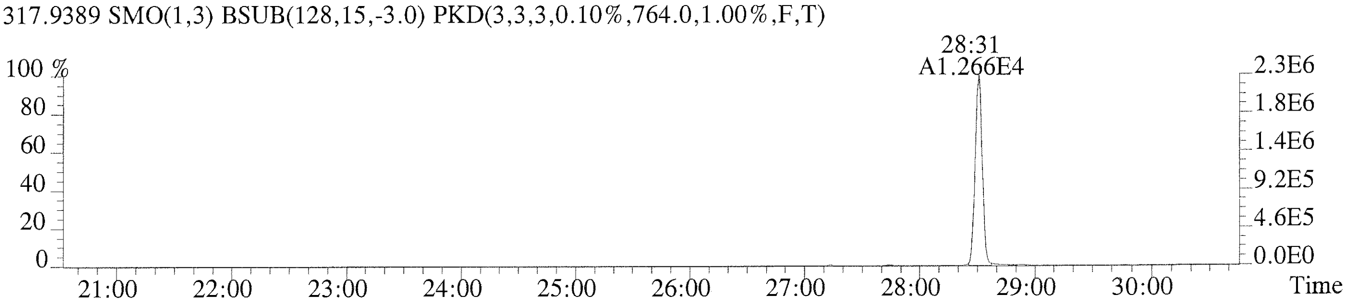
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



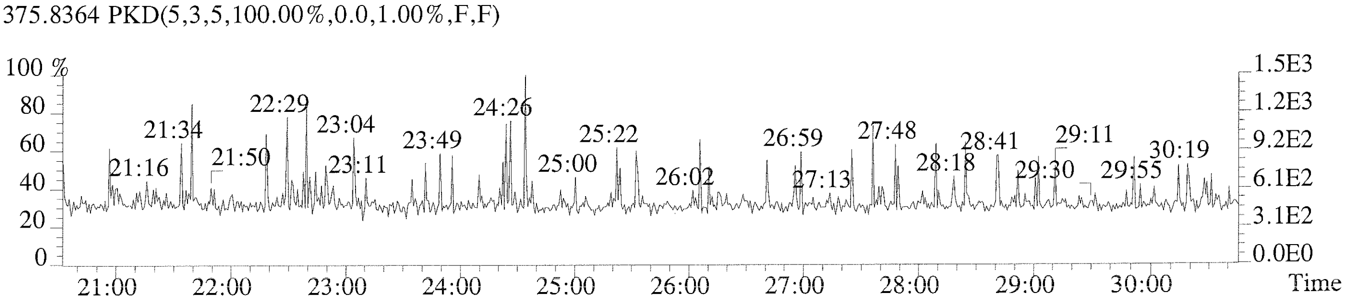
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



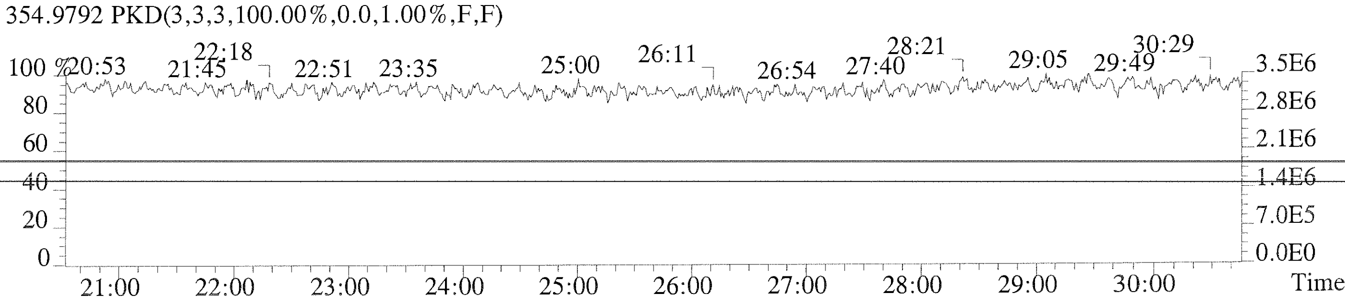
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



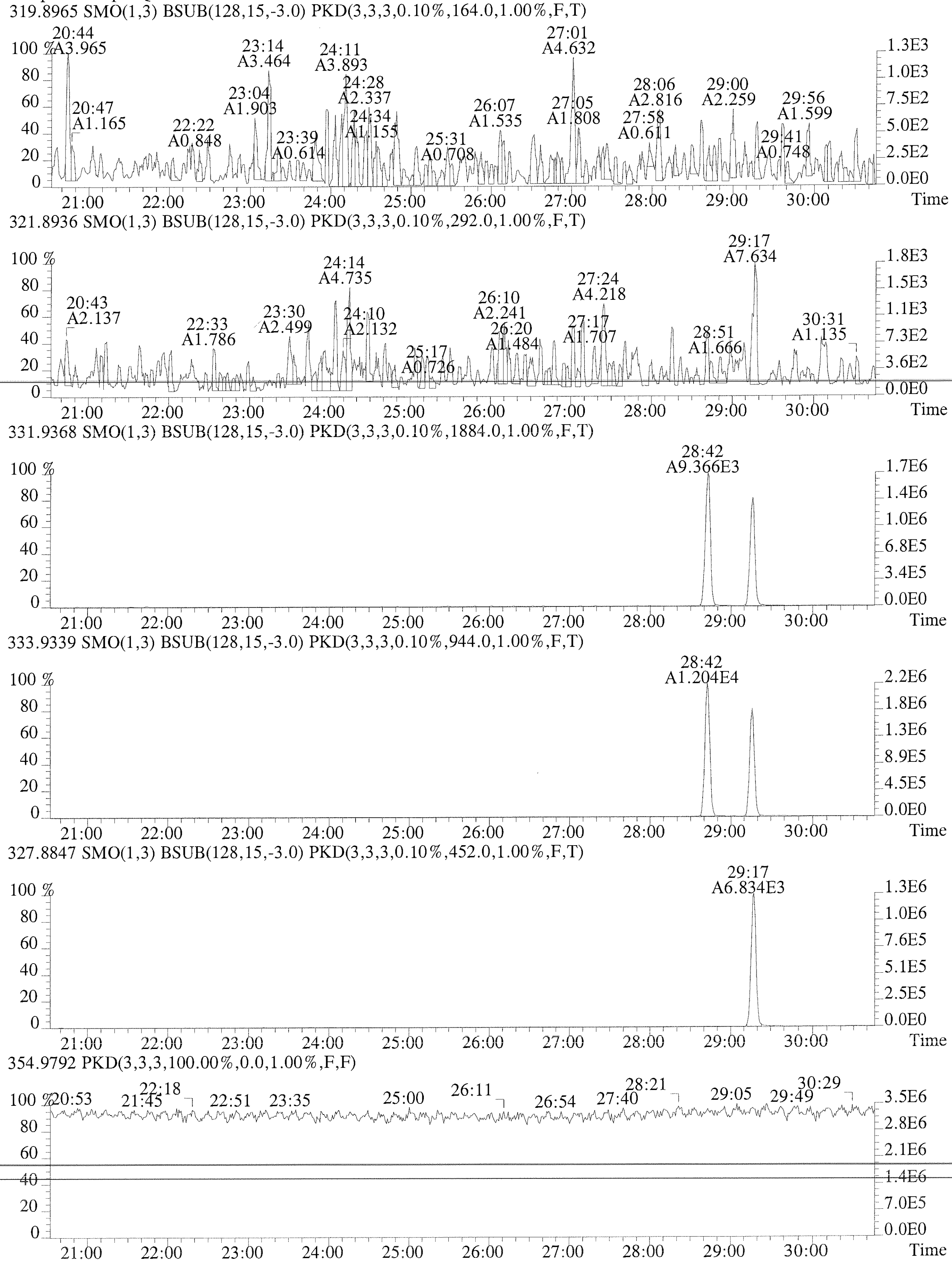
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



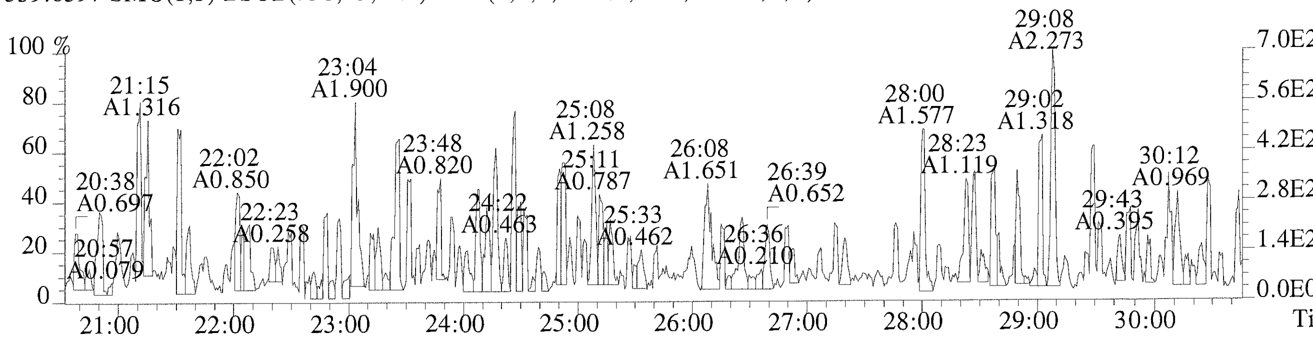
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



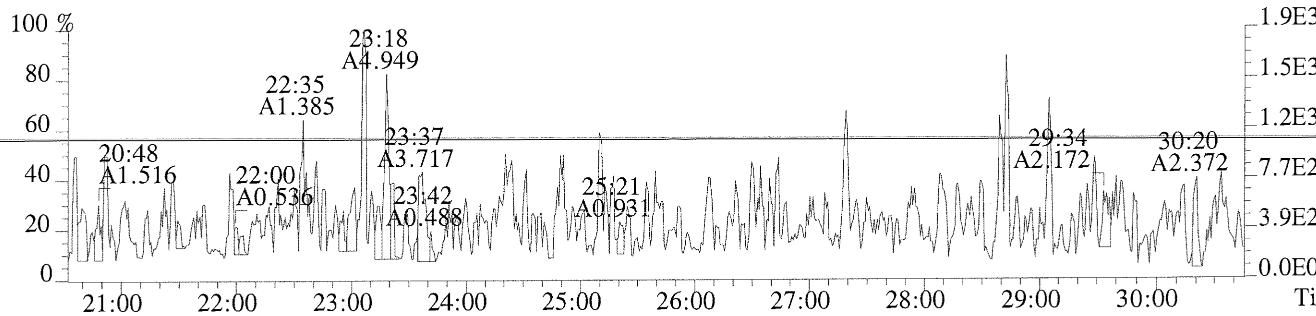
File:P174027 #1-788 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01



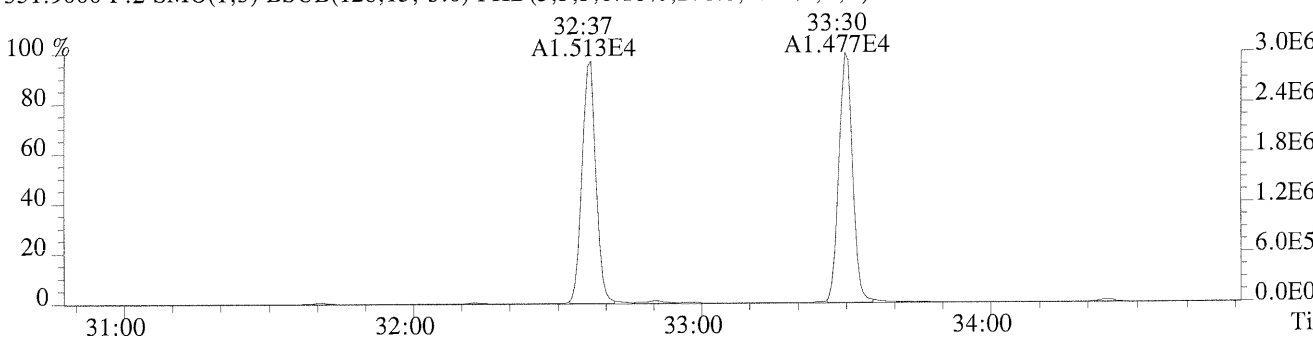
File:P174027 #1-788 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,88.0,1.00%,F,T)



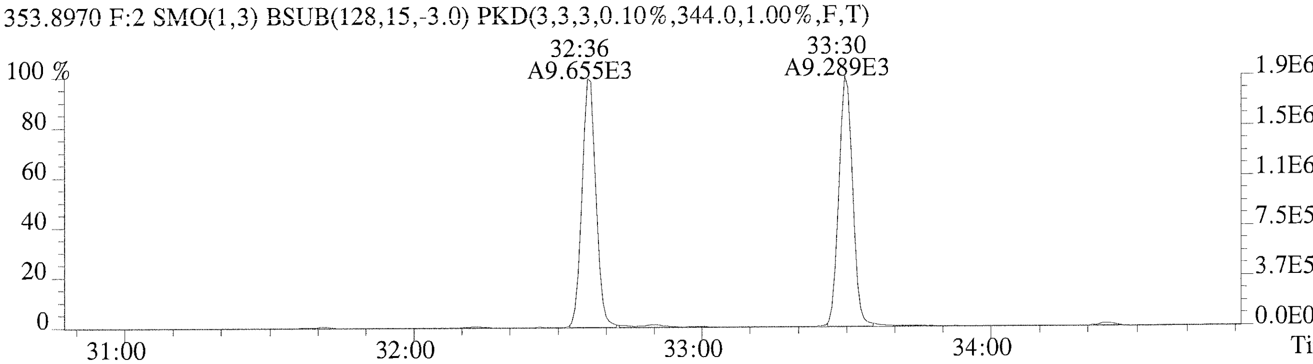
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



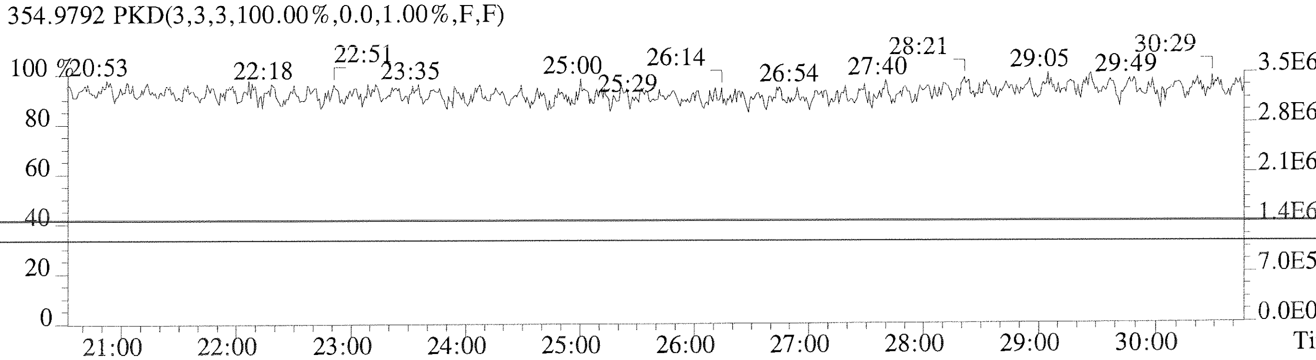
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



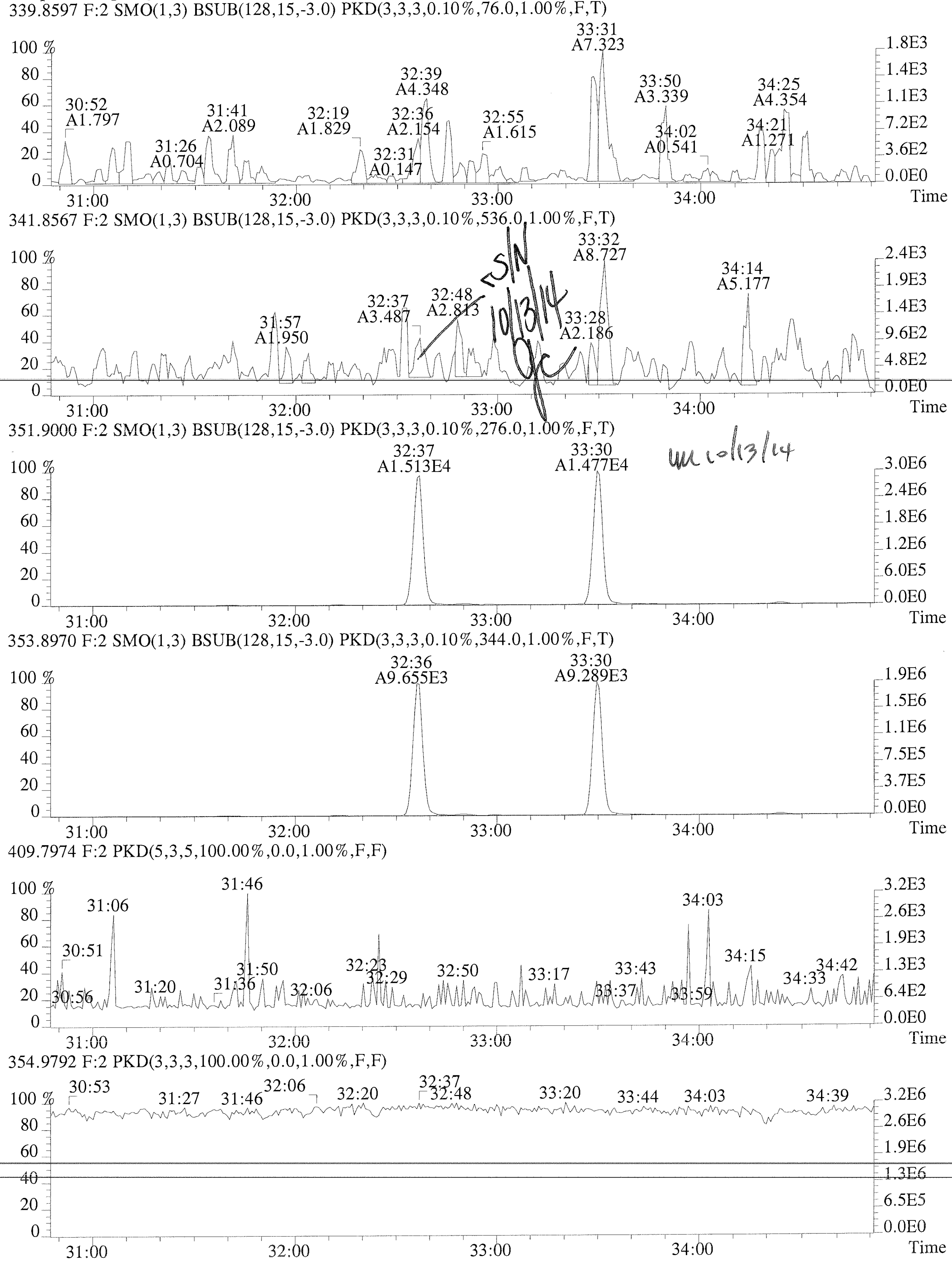
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



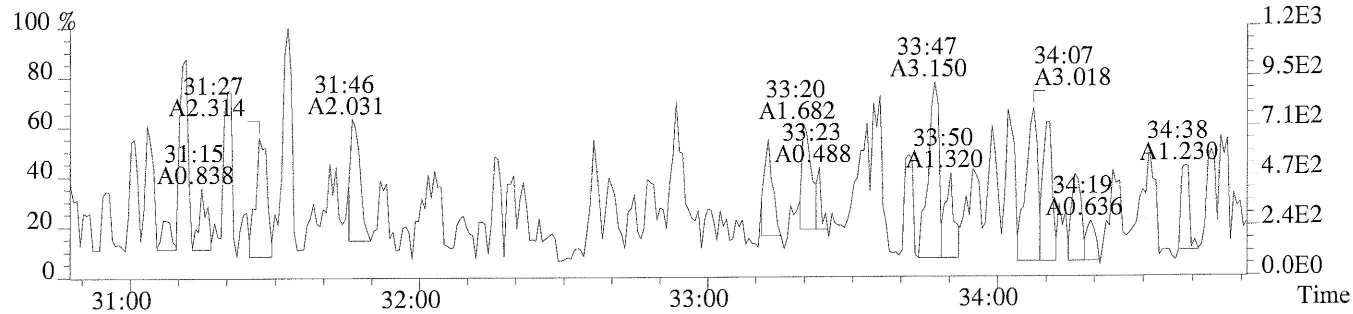
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



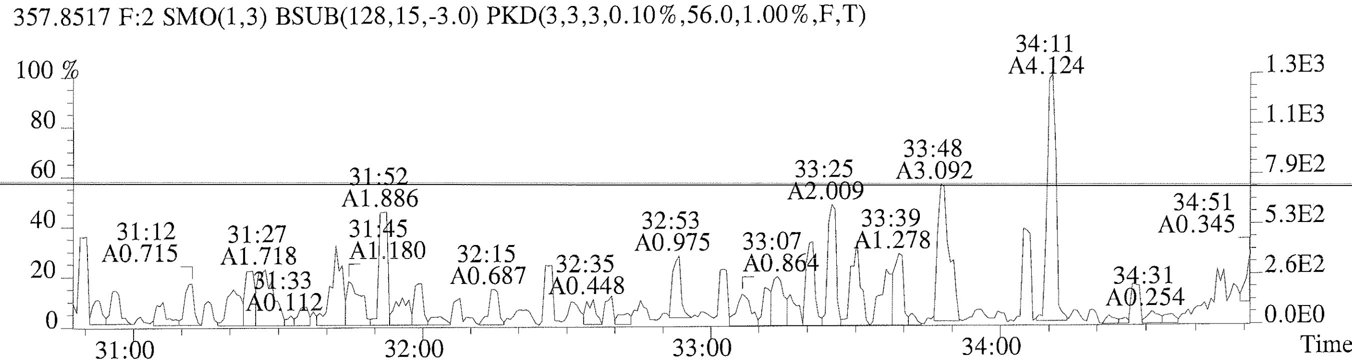
File:P174027 #1-369 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01



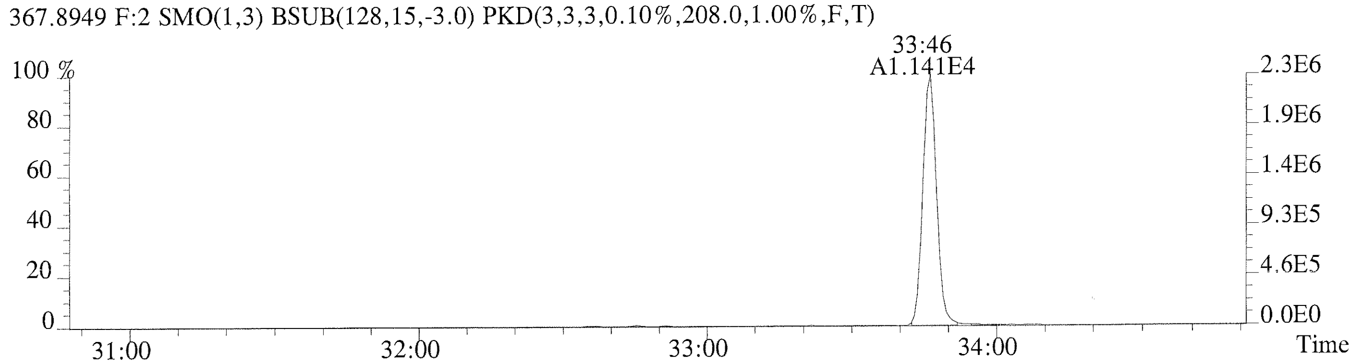
File:P174027 #1-369 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



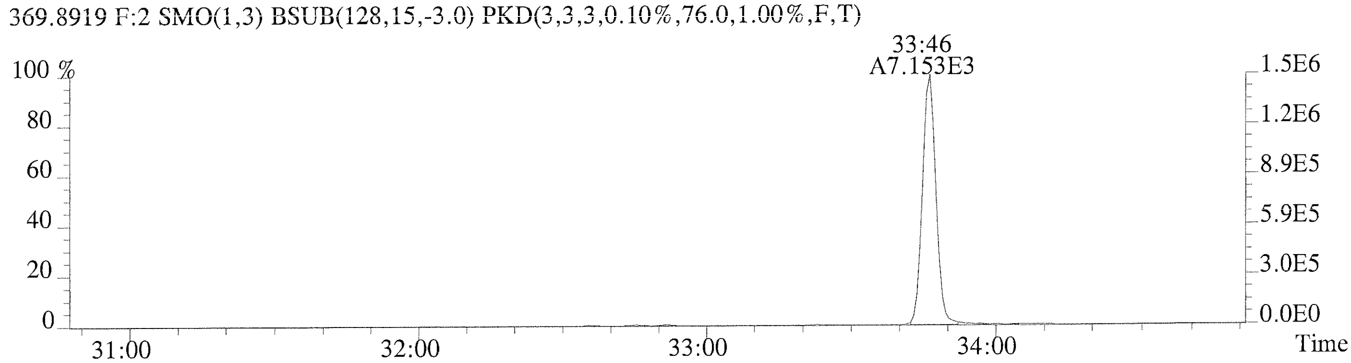
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,56.0,1.00%,F,T)



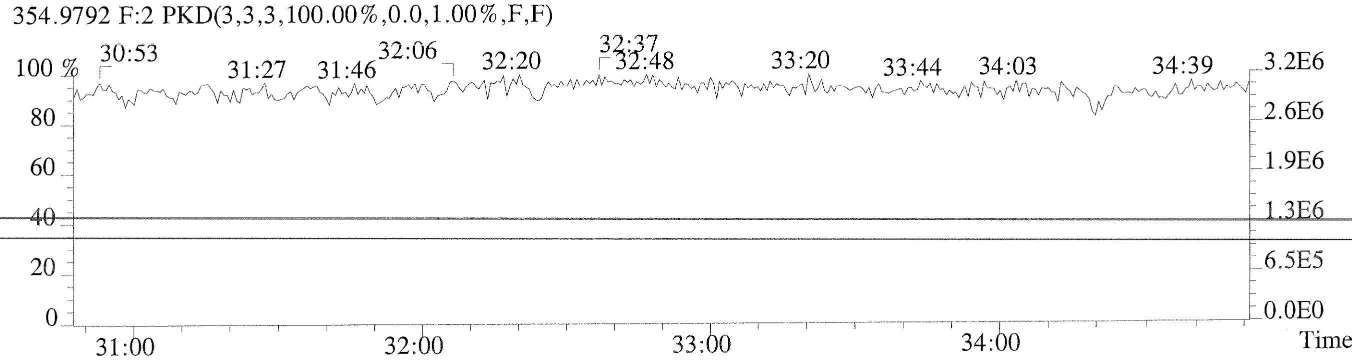
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



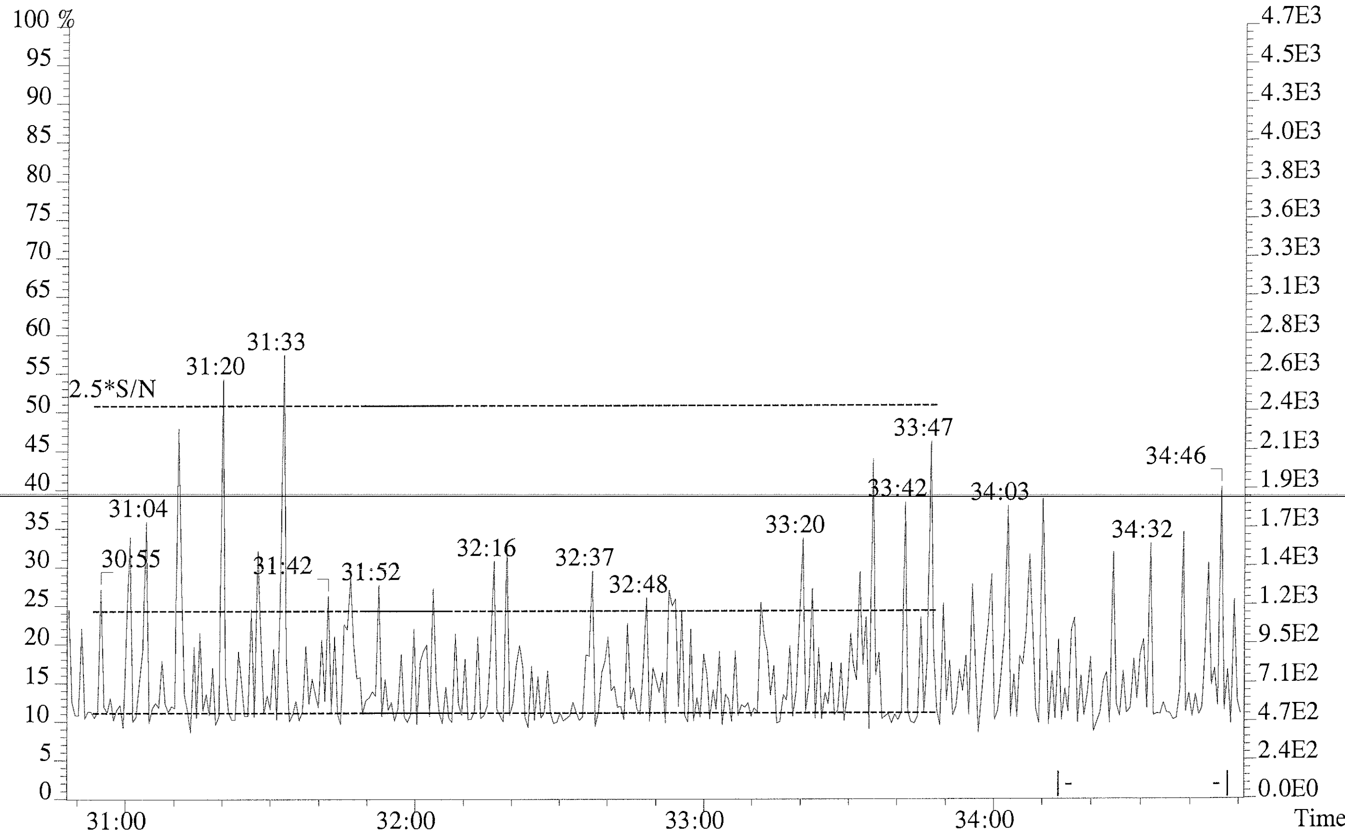
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,76.0,1.00%,F,T)



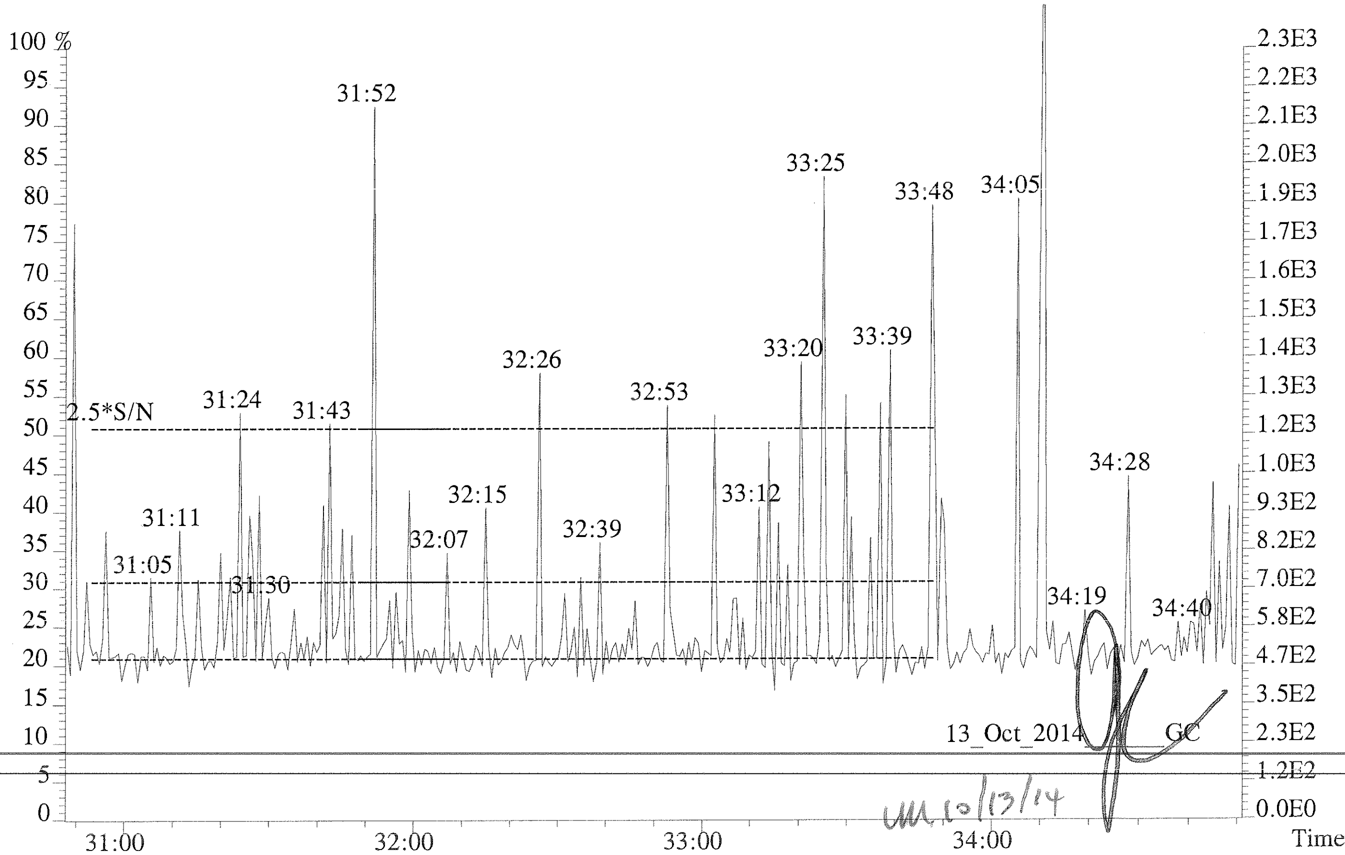
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



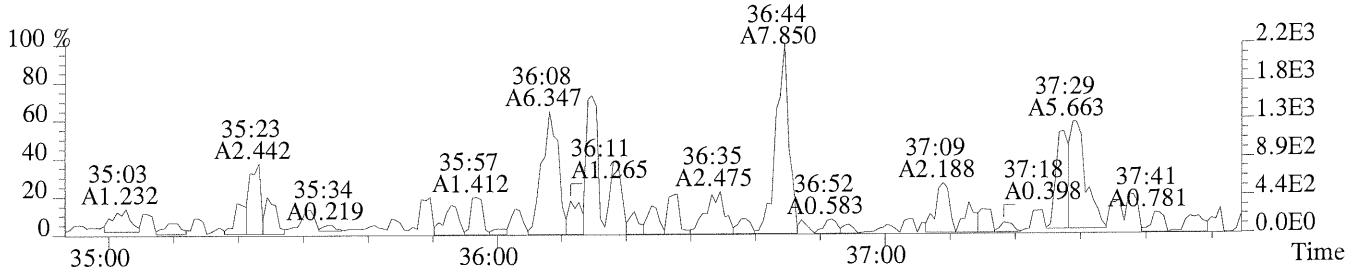
File:P174027 #1-369 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
355.8546 F:2



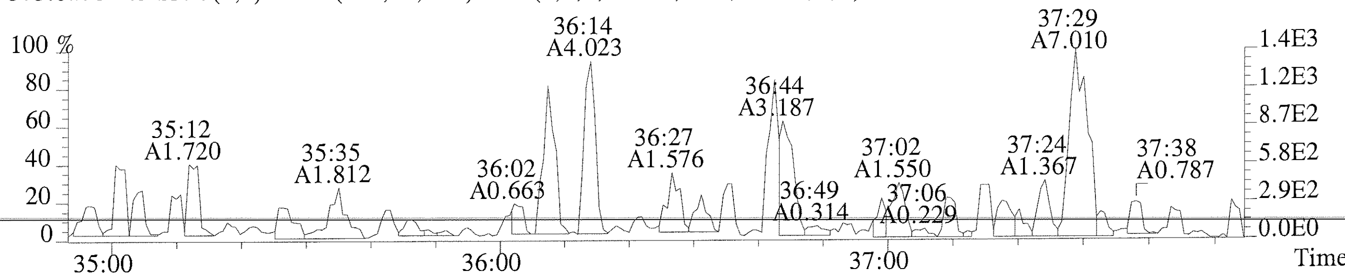
357.8517 F:2



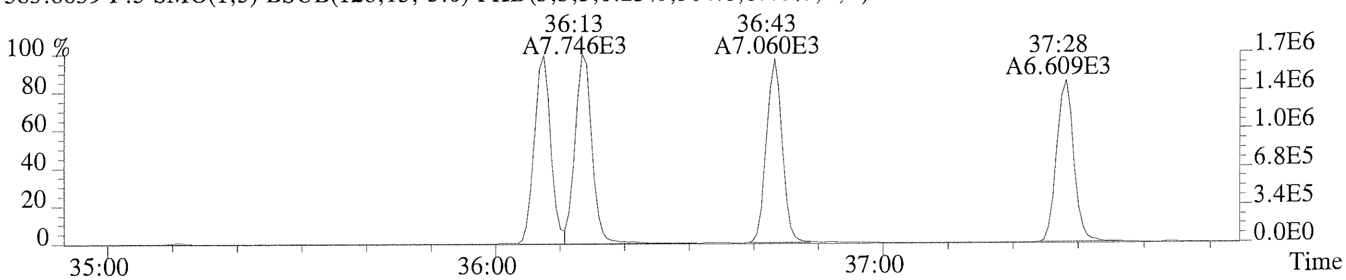
File:P174027 #1-275 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



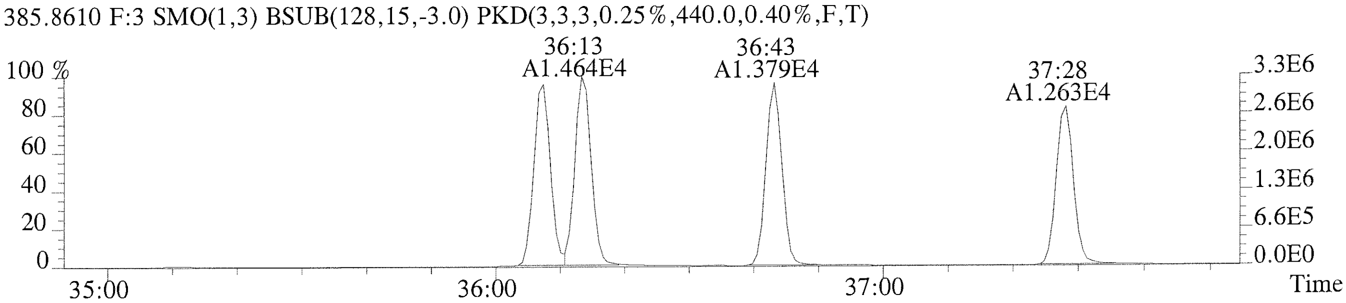
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



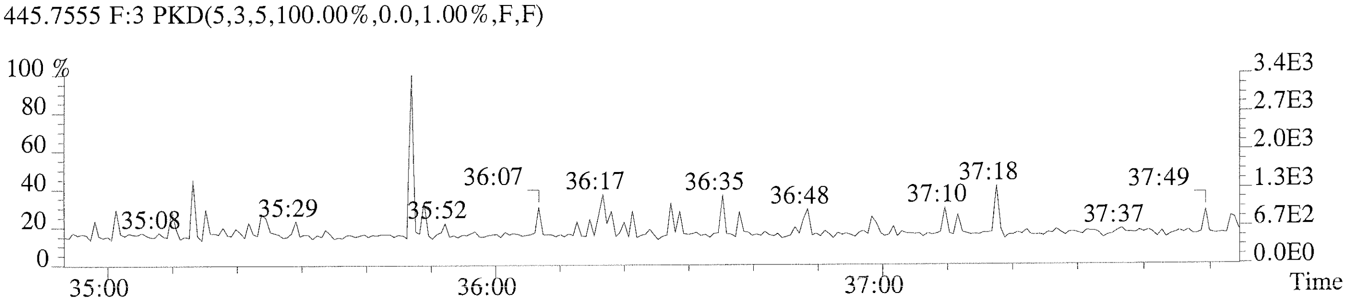
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



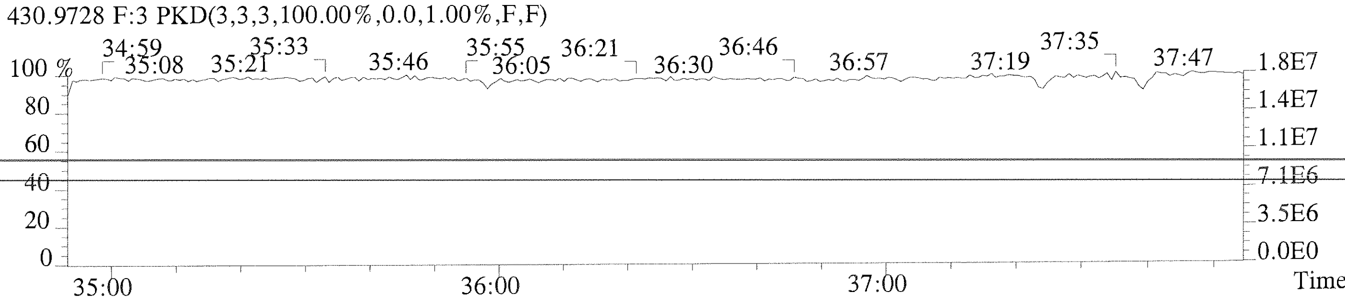
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



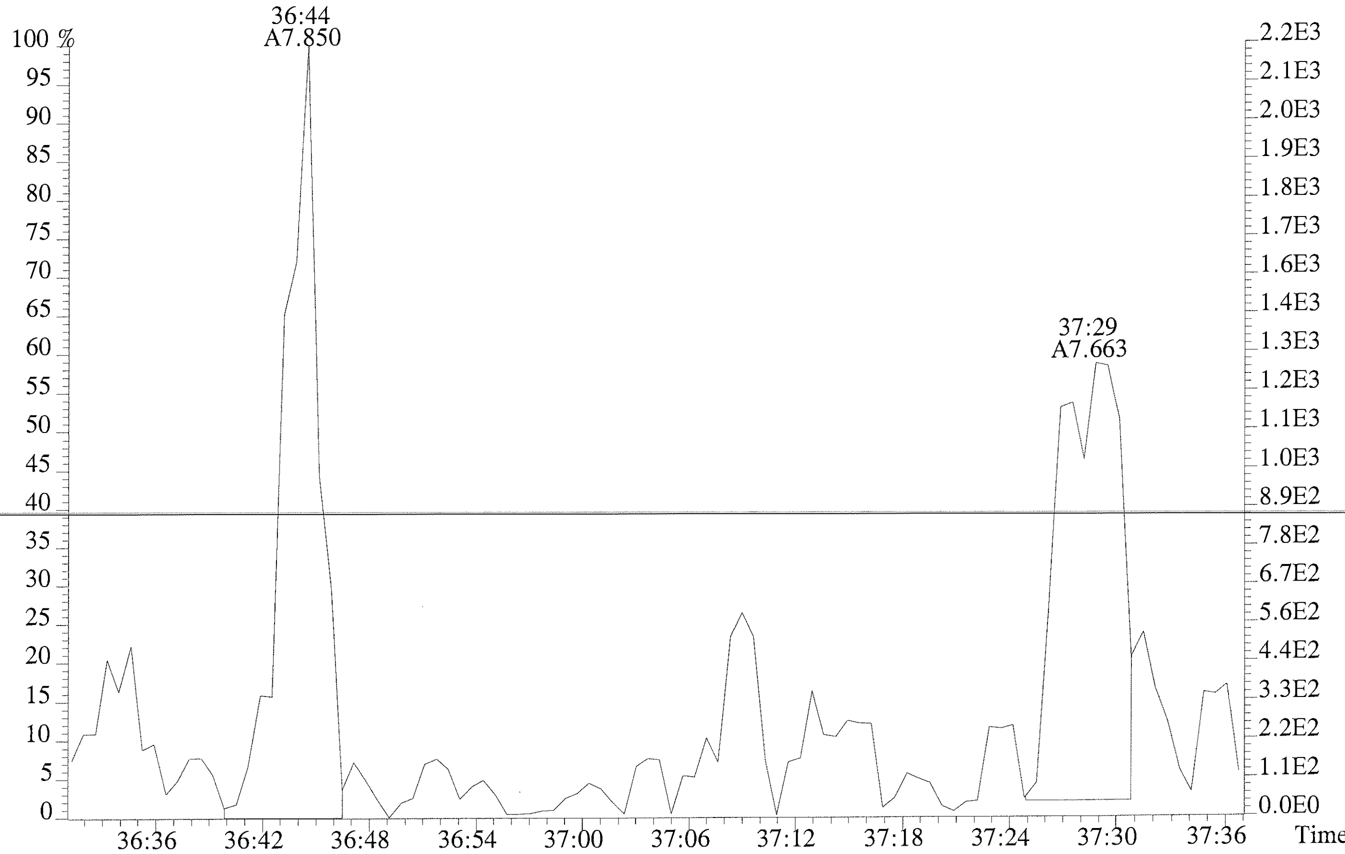
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



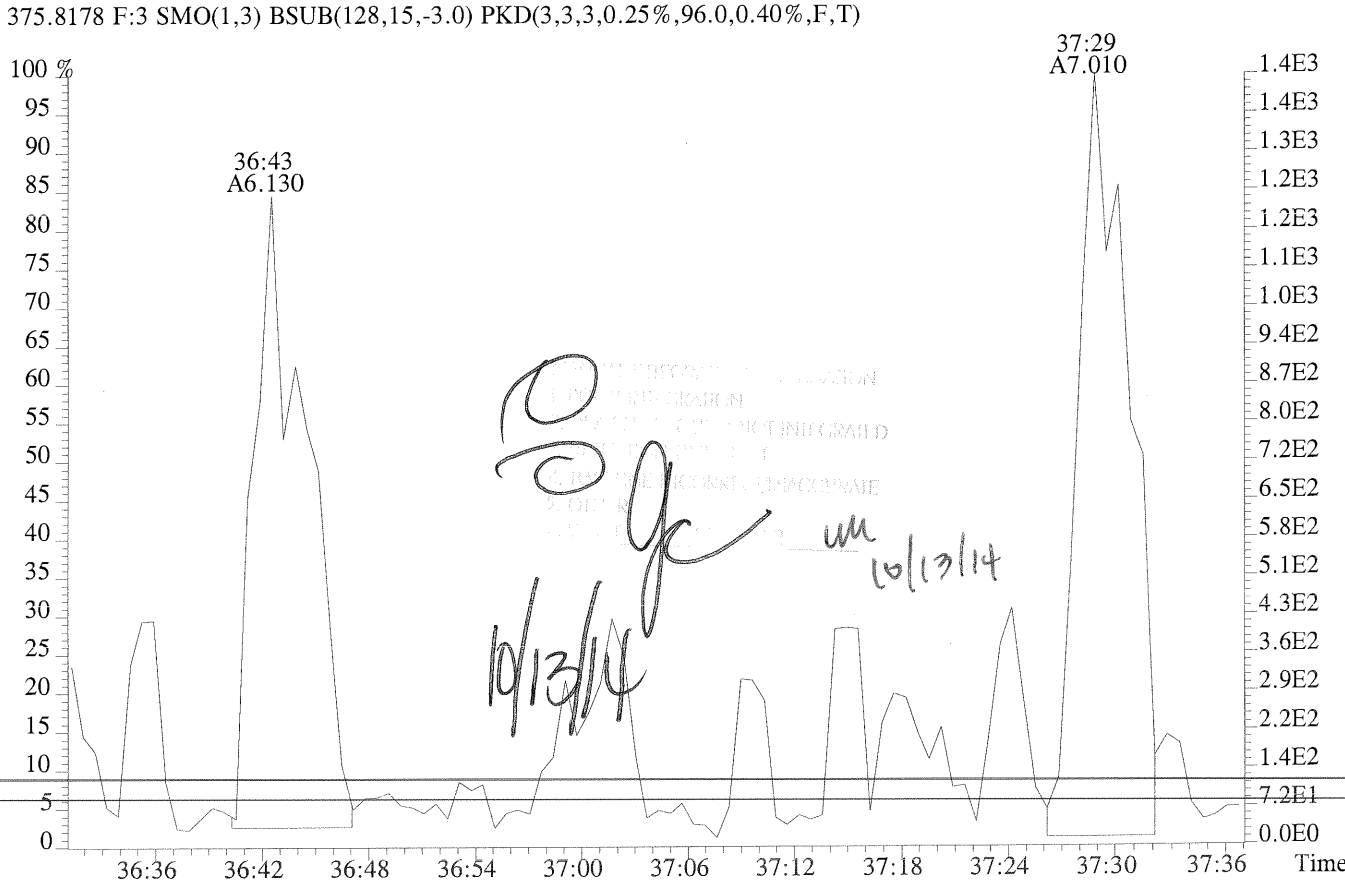
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P174027 #1-275 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)

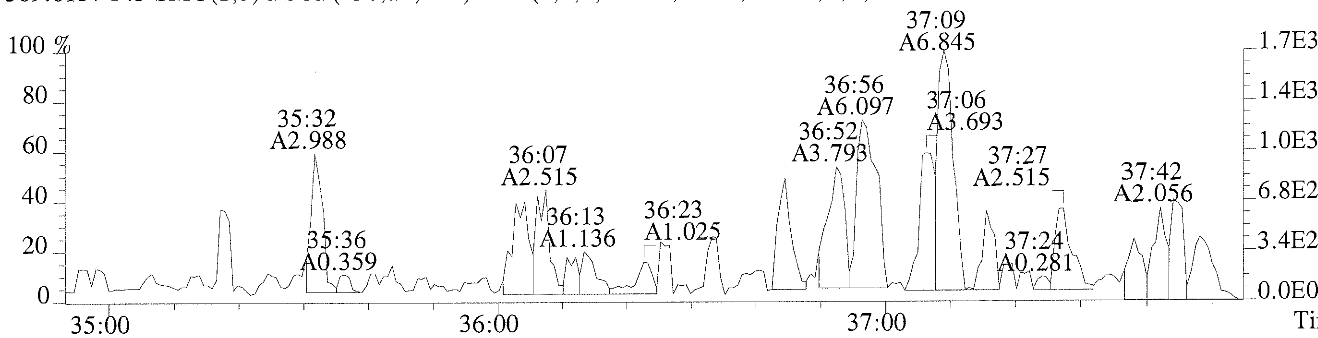


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)

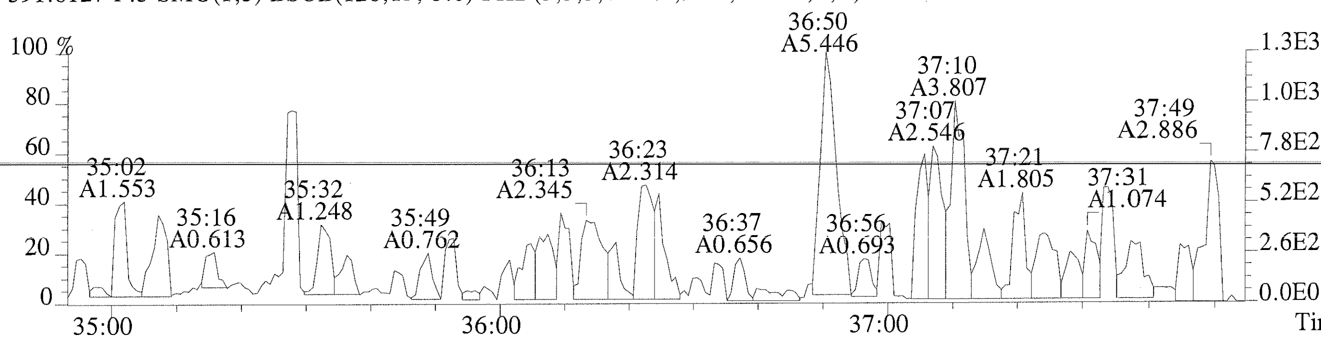


File:P174027 #1-275 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01

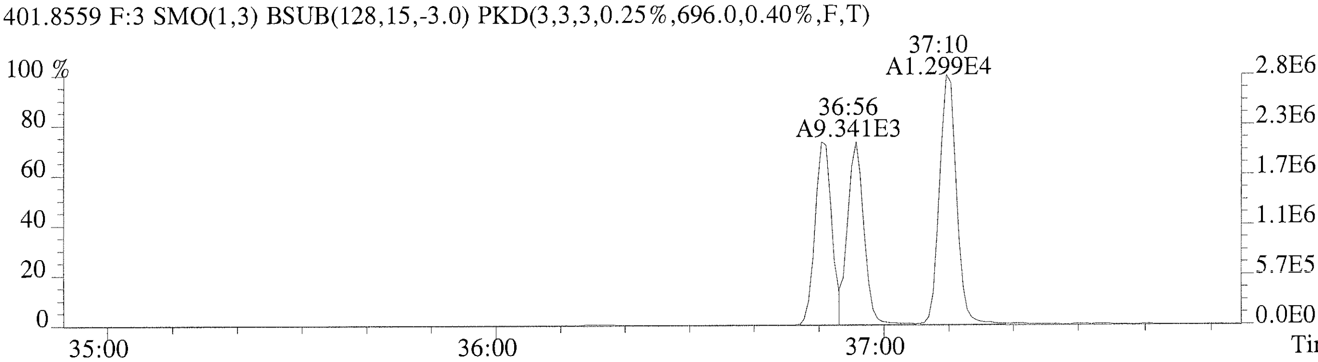
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



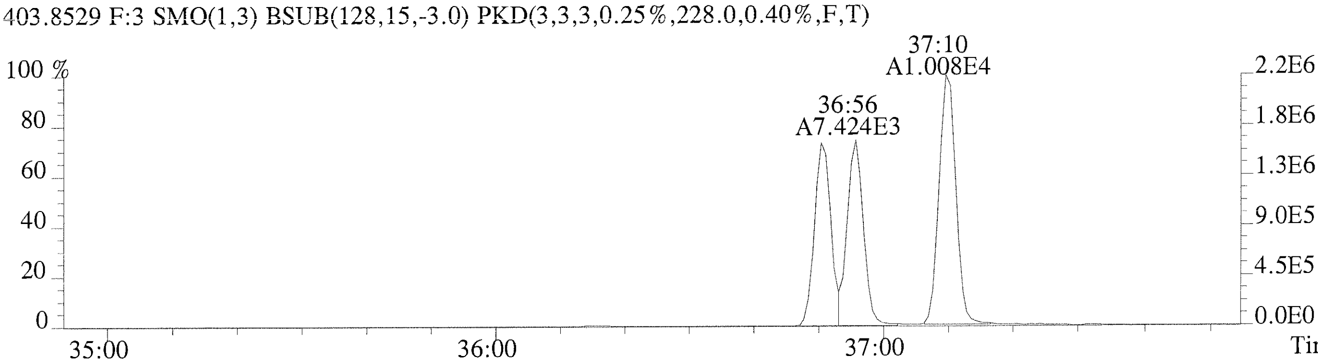
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



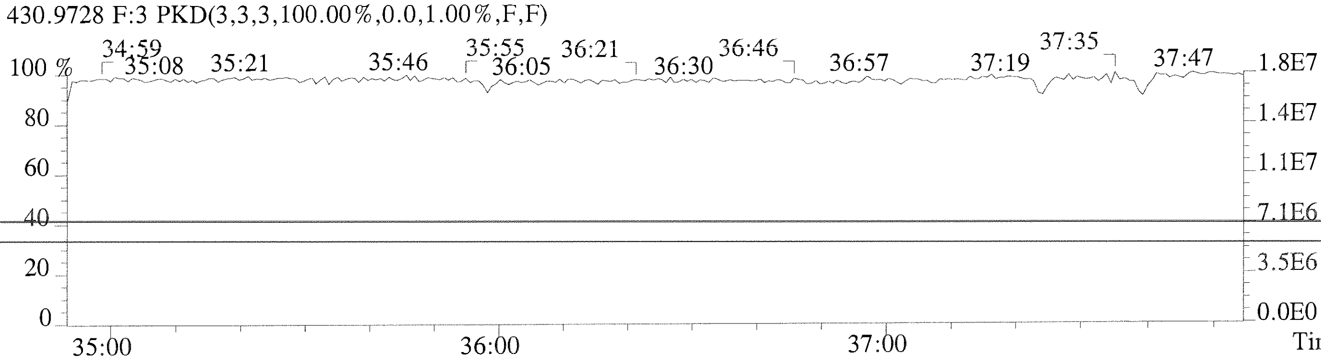
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



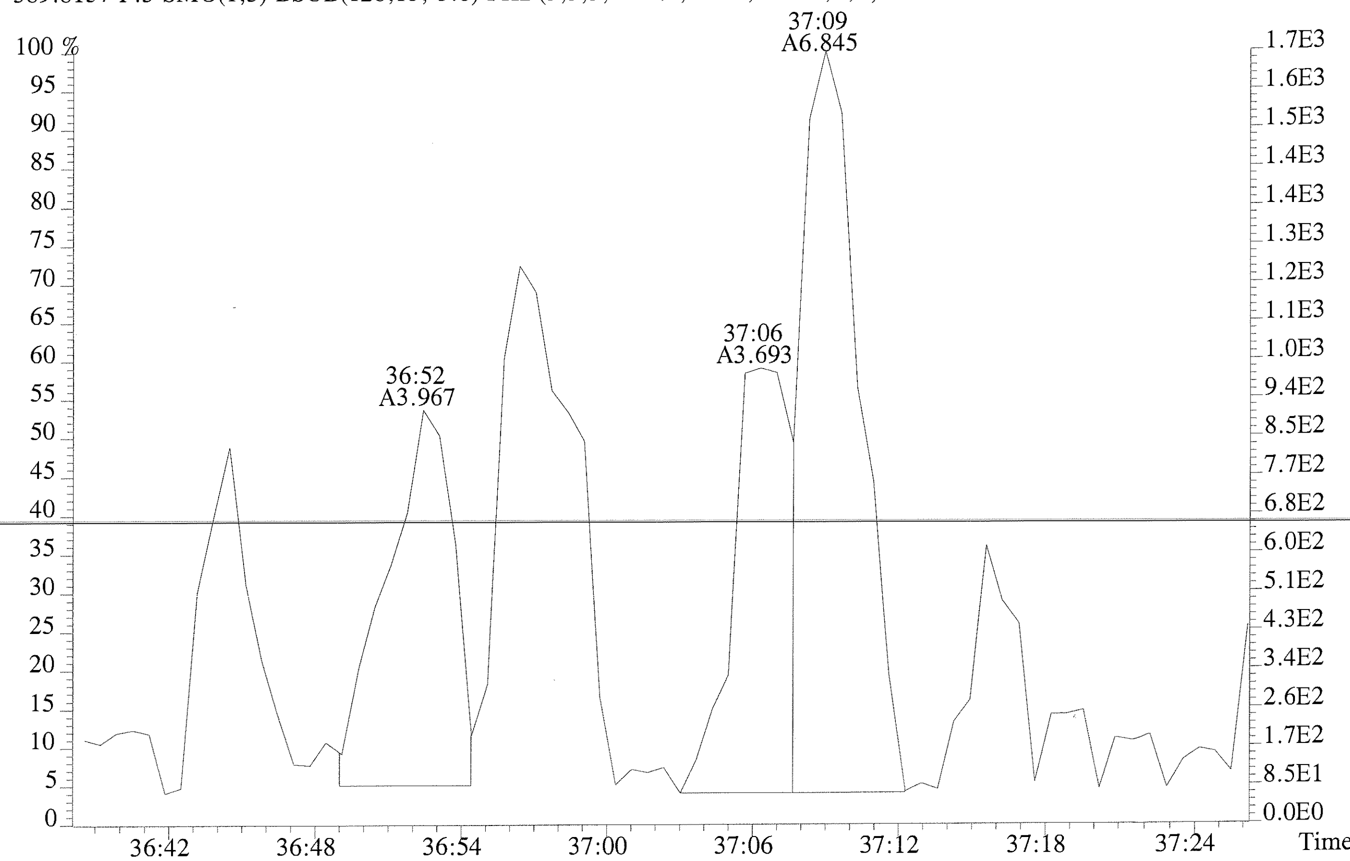
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



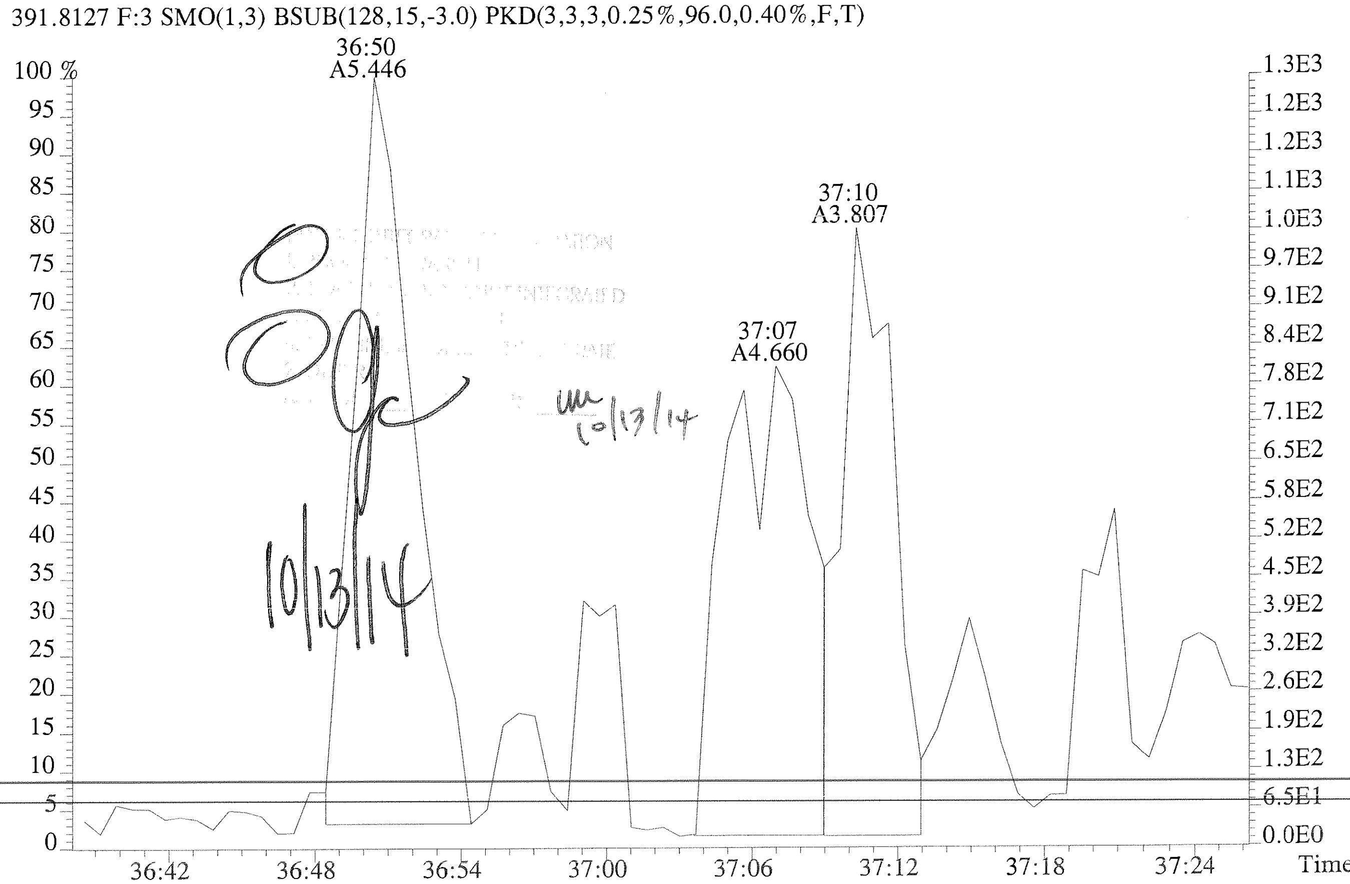
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



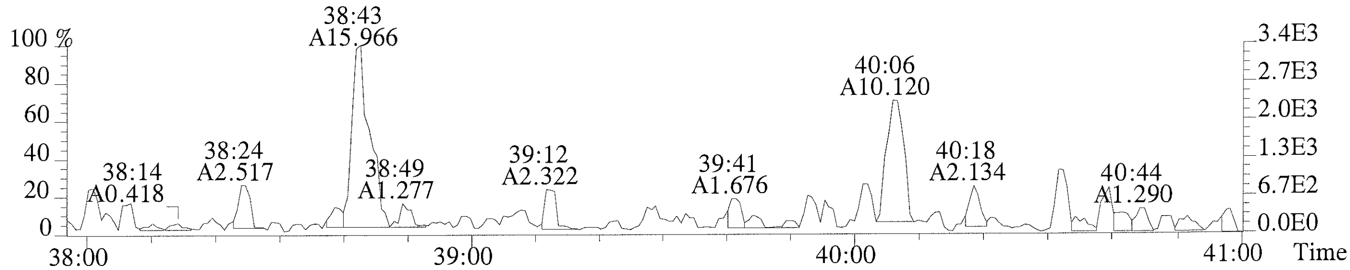
File:P174027 #1-275 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



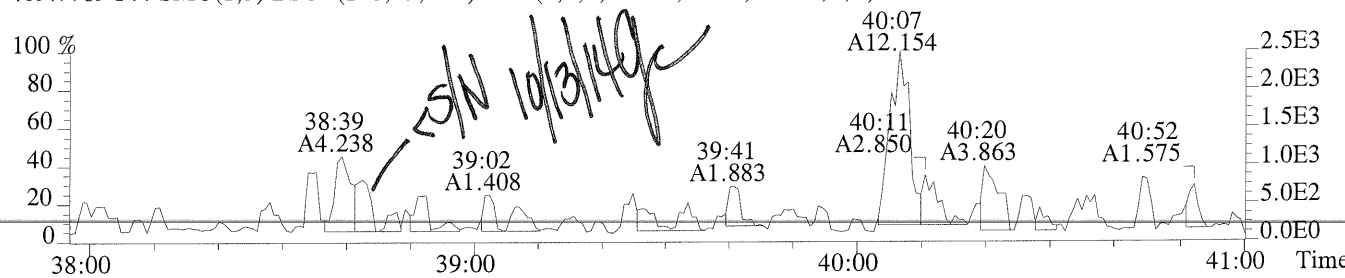
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



File:P174027 #1-278 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



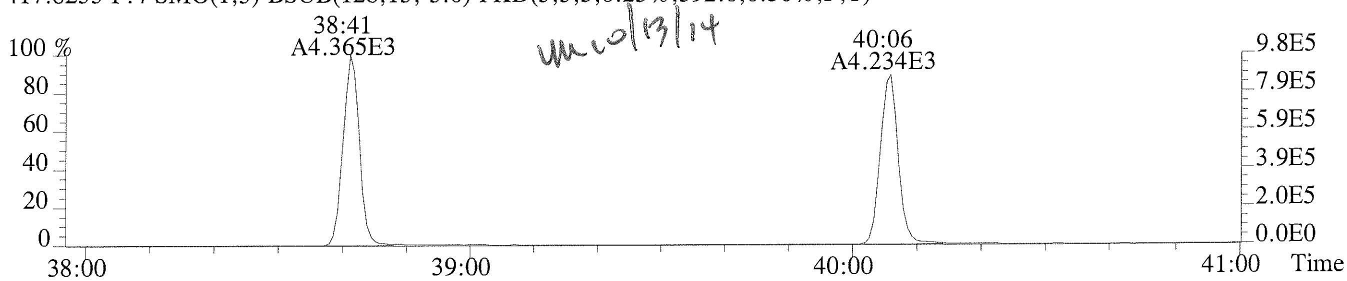
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.50%,F,T)



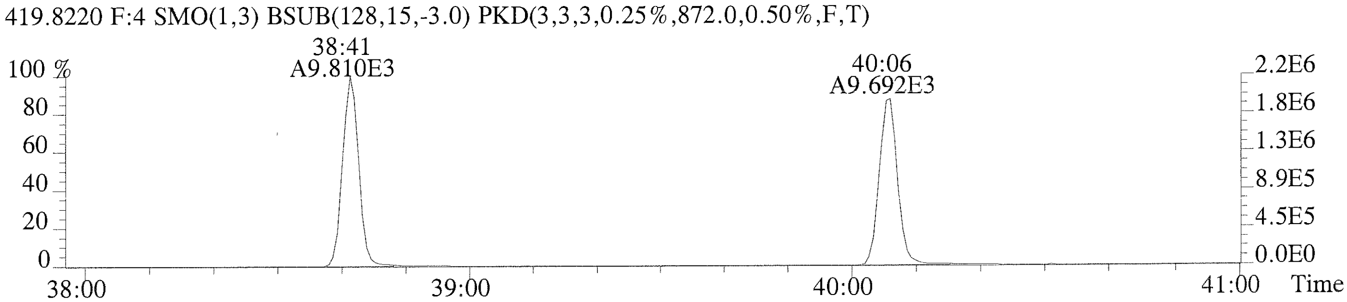
<S/N 10/13/14

417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.50%,F,T)

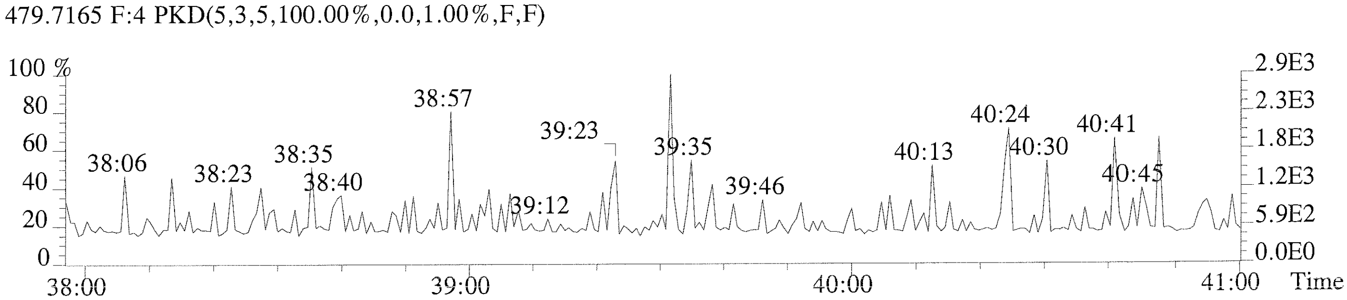
um 10/13/14



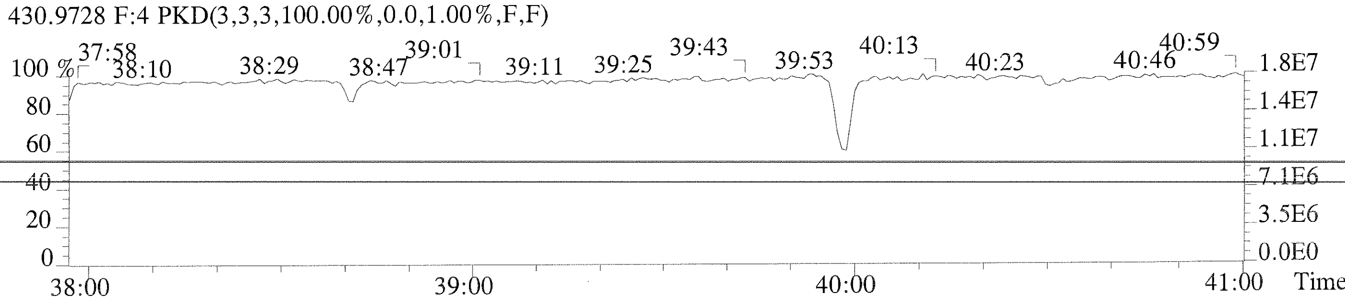
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

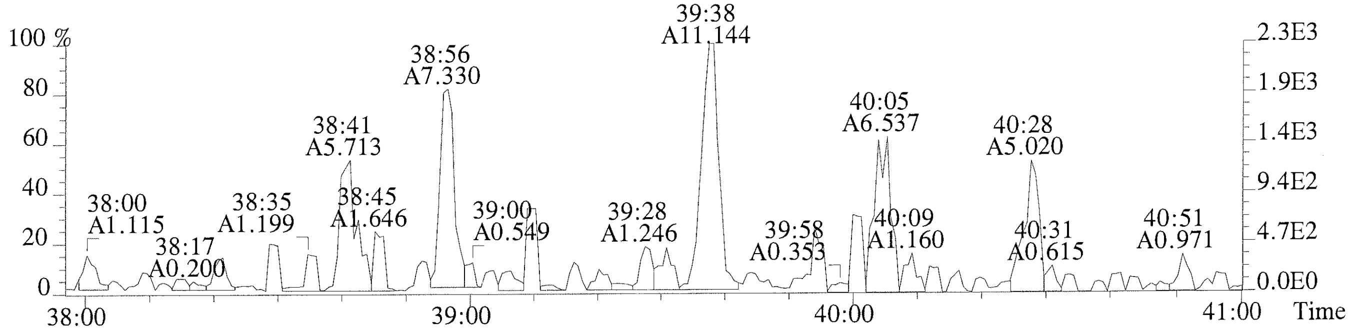


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

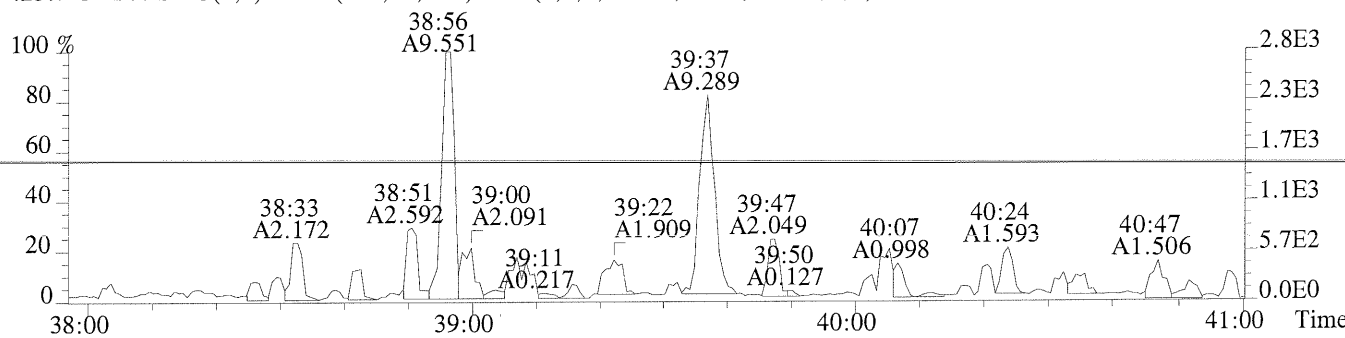


File:P174027 #1-278 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01

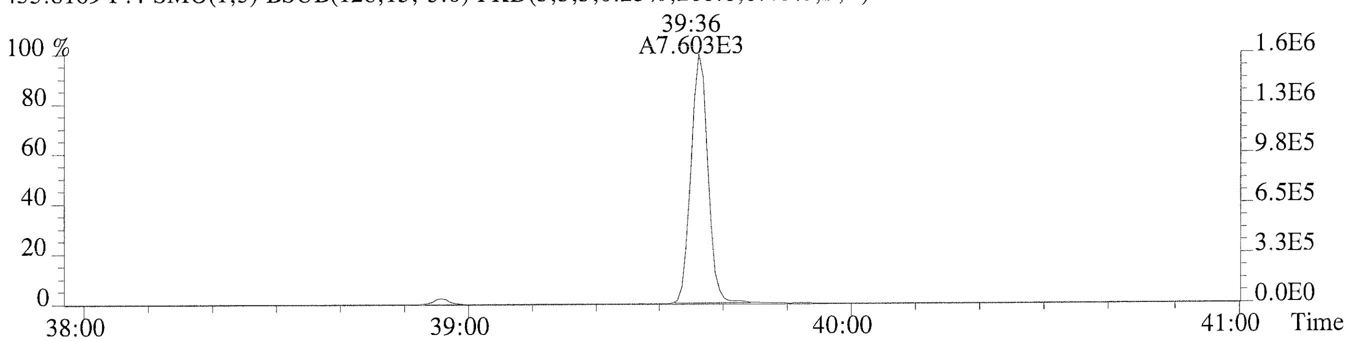
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



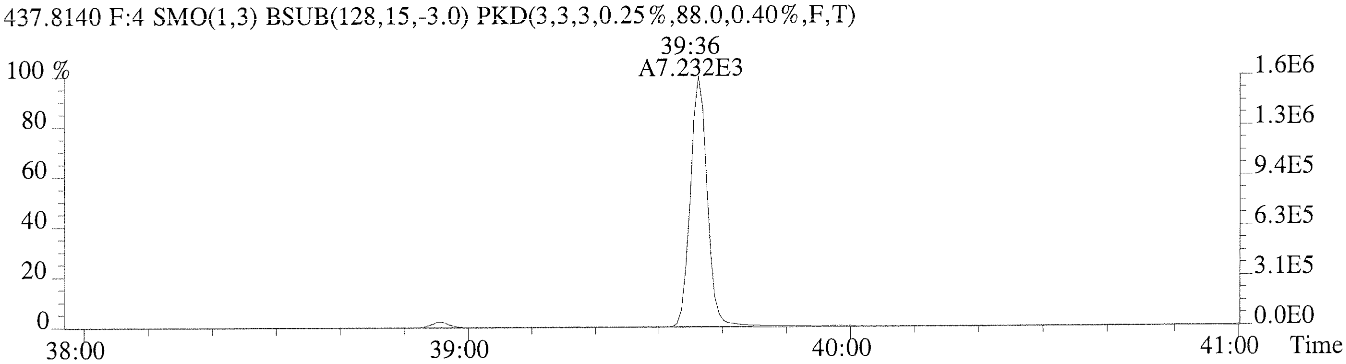
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,112.0,0.40%,F,T)



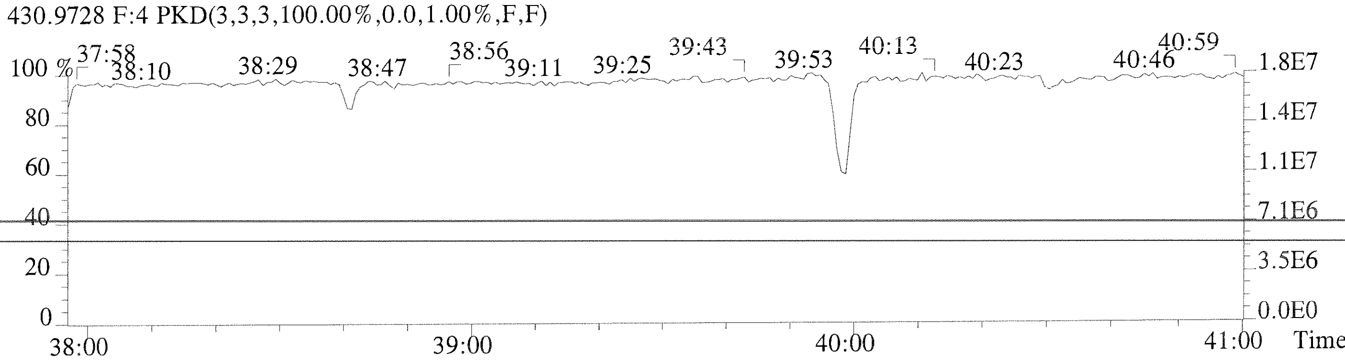
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.40%,F,T)

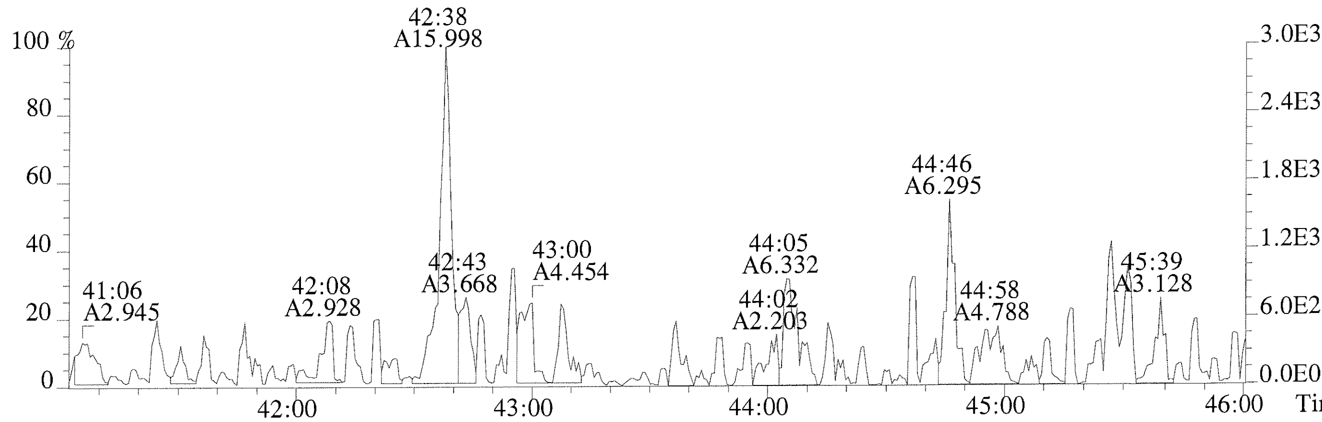


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

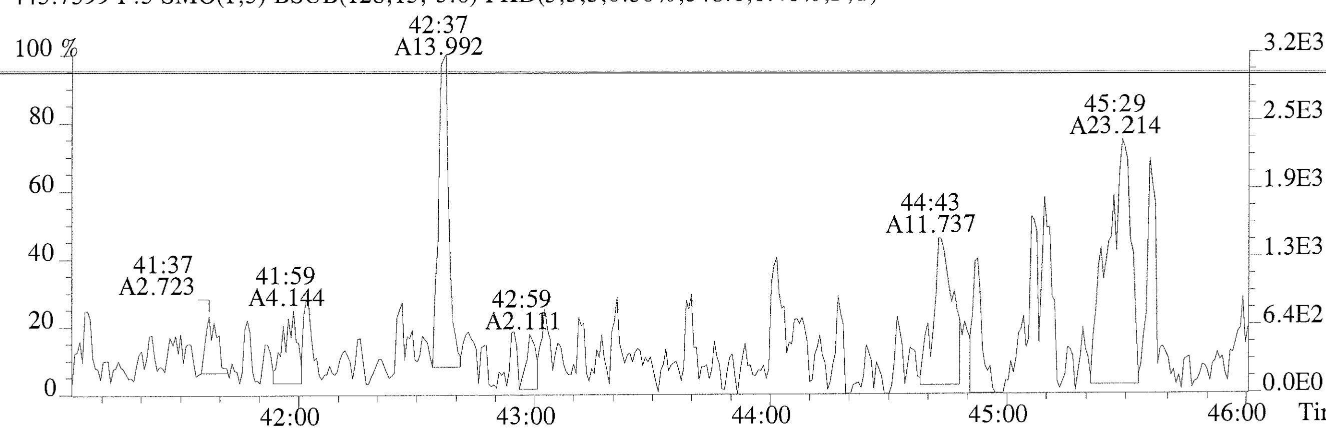


File:P174027 #1-457 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01

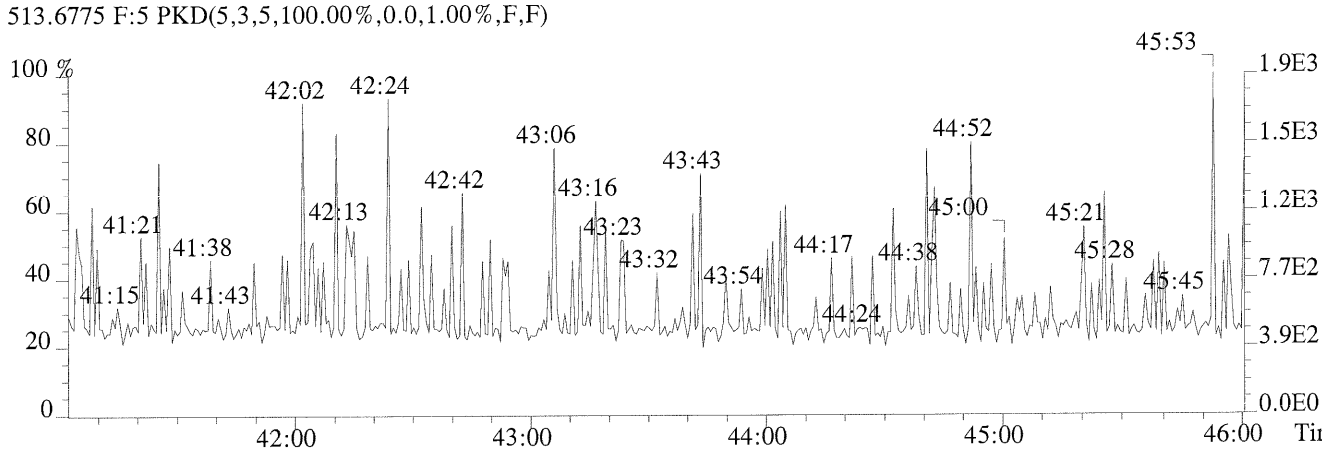
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,88.0,0.40%,F,T)



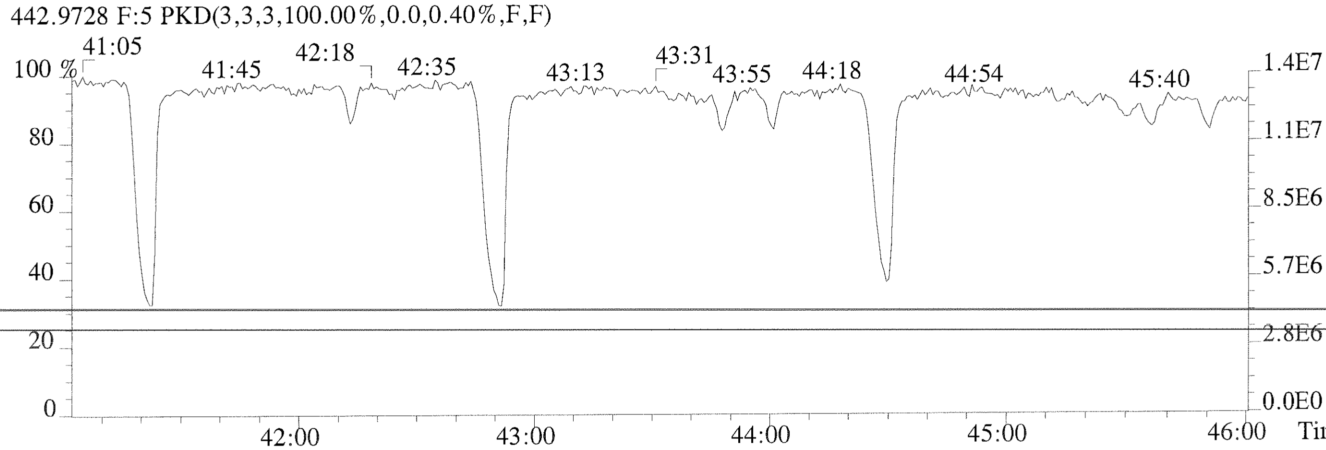
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

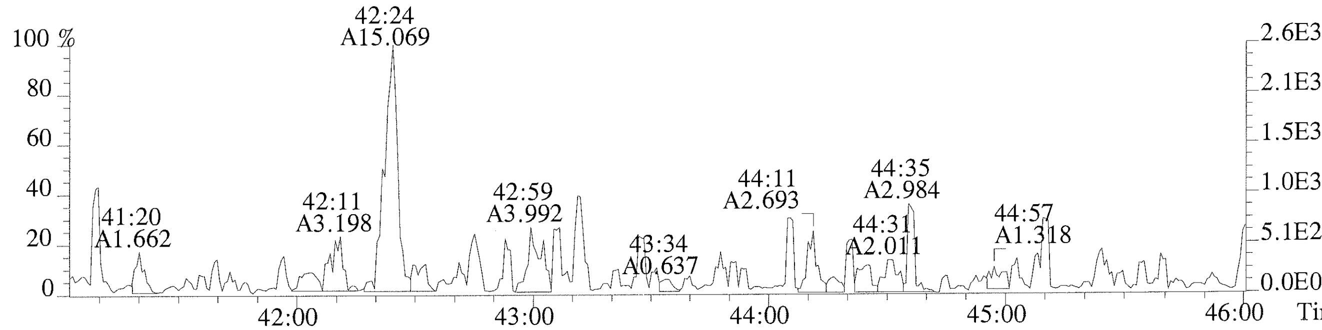


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

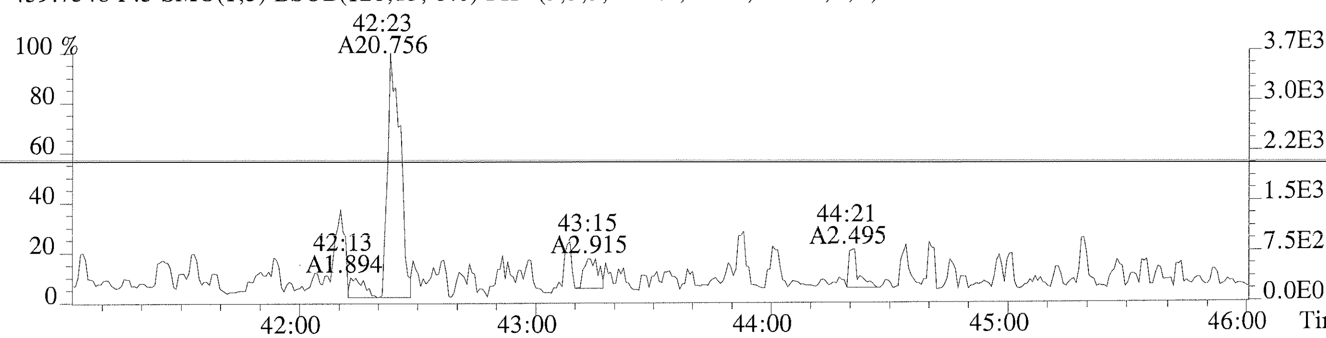


File:P174027 #1-457 Acq:11-OCT-2014 04:31:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-01

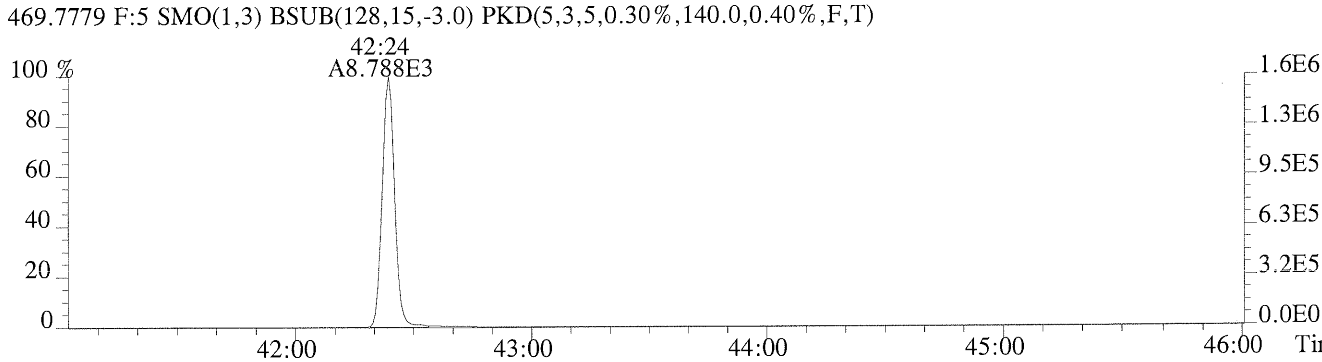
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,88.0,0.40%,F,T)



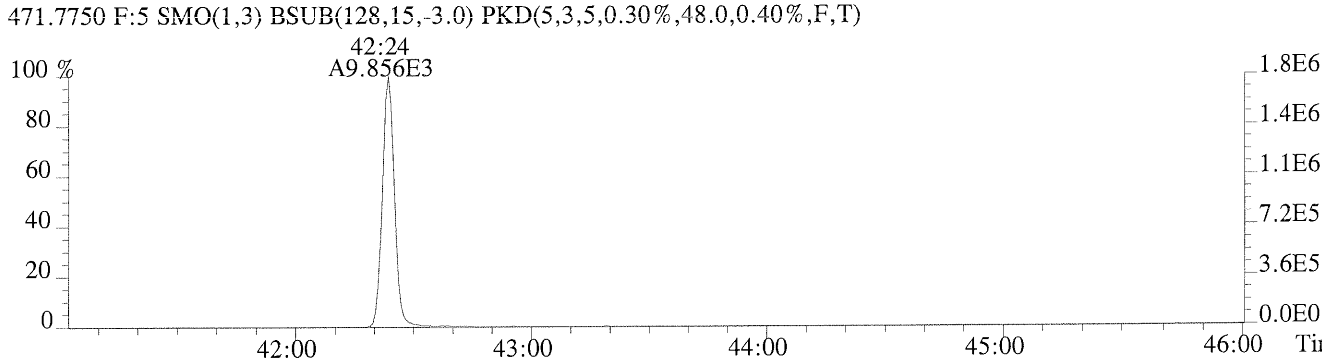
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



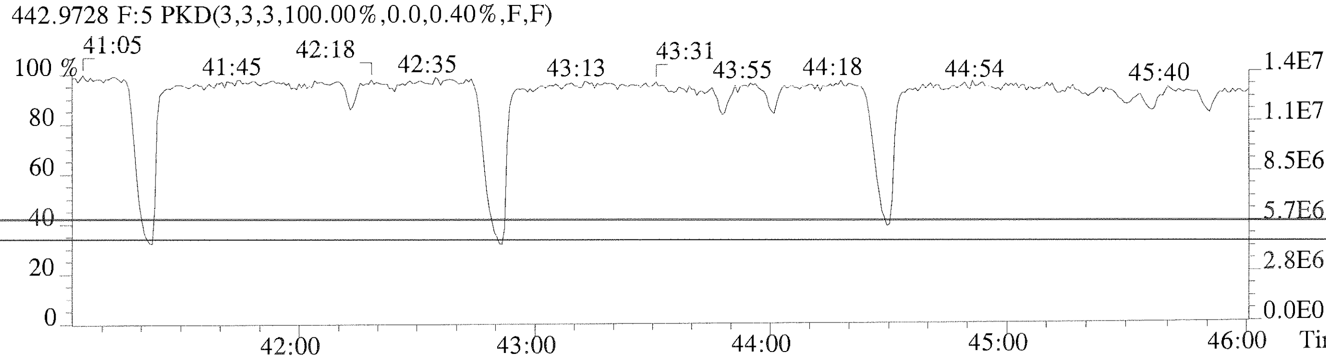
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,48.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
LCS

Run #15 Filename P174009 Samp: 1 Inj: 1 Acquired: 10-OCT-14 13:19:55
Processed: 10-OCT-14 12:53:24 Sample ID: EQ1400620-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:33	9.645e+02	1.267e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:38	8.631e+03	5.254e+03	1.64	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:31	8.250e+03	5.188e+03	1.59	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:09	7.436e+03	5.922e+03	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:15	7.956e+03	6.170e+03	1.29	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:44	7.455e+03	5.901e+03	1.26	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:29	6.808e+03	5.193e+03	1.31	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:43	3.780e+03	3.667e+03	1.03	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	4.951e+03	4.714e+03	1.05	yes	no	1.324
10	Unk	OCDF	42:37	5.688e+03	6.315e+03	0.90	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:18	7.806e+02	1.009e+03	0.77	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	33:48	5.716e+03	3.599e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	36:52	4.894e+03	3.870e+03	1.26	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	36:57	4.711e+03	3.783e+03	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:11	4.984e+03	4.044e+03	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	3.736e+03	3.502e+03	1.07	yes	no	1.016
17	Unk	OCDD	42:25	4.142e+03	4.580e+03	0.90	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:31	1.054e+04	1.335e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:37	1.607e+04	1.025e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:30	1.579e+04	9.996e+03	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:08	7.613e+03	1.441e+04	0.53	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:14	7.962e+03	1.522e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:44	7.207e+03	1.406e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	6.624e+03	1.302e+04	0.51	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:42	3.116e+03	6.990e+03	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	4.147e+03	9.453e+03	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:17	7.886e+03	9.865e+03	0.80	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:47	1.212e+04	7.742e+03	1.56	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:51	9.528e+03	7.473e+03	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	9.286e+03	7.466e+03	1.24	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	7.441e+03	6.816e+03	1.09	yes	no	0.862
32	IS	13C-OCDD	42:24	7.948e+03	8.746e+03	0.91	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:43	1.034e+04	1.316e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	1.365e+04	1.075e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:18	6.981e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
LCS

Run #15 Filename P174009 Samp: 1 Inj: 1 Acquired: 10-OCT-14 13:19:55
Processed: 10-OCT-14 12:53:241 LAB. ID: EQ1400620-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.70e+05	3.32e+02	5.1e+02	2.20e+05	1.04e+03	2.1e+02
2	1,2,3,7,8-PeCDF	1.70e+06	1.64e+02	1.0e+04	1.03e+06	5.88e+02	1.8e+03
3	2,3,4,7,8-PeCDF	1.64e+06	1.64e+02	1.0e+04	1.04e+06	5.88e+02	1.8e+03
4	1,2,3,4,7,8-HxCDF	1.62e+06	2.96e+02	5.5e+03	1.30e+06	1.04e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	1.74e+06	2.96e+02	5.9e+03	1.35e+06	1.04e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	1.71e+06	2.96e+02	5.8e+03	1.34e+06	1.04e+02	1.3e+04
7	1,2,3,7,8,9-HxCDF	1.45e+06	2.96e+02	4.9e+03	1.12e+06	1.04e+02	1.1e+04
8	1,2,3,4,6,7,8-HpCDF	7.73e+05	6.96e+02	1.1e+03	7.22e+05	4.64e+02	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.02e+06	6.96e+02	1.5e+03	9.88e+05	4.64e+02	2.1e+03
10	OCDF	1.01e+06	2.60e+02	3.9e+03	1.15e+06	4.00e+02	2.9e+03
~~11~~	~~2,3,7,8-TCDD~~	~~1.47e+05~~	~~3.60e+02~~	~~4.1e+02~~	~~1.91e+05~~	~~4.12e+02~~	~~4.6e+02~~
12	1,2,3,7,8-PeCDD	1.19e+06	4.44e+02	2.7e+03	7.50e+05	2.68e+02	2.8e+03
13	1,2,3,4,7,8-HxCDD	1.14e+06	1.04e+02	1.1e+04	8.96e+05	3.84e+02	2.3e+03
14	1,2,3,6,7,8-HxCDD	1.06e+06	1.04e+02	1.0e+04	8.45e+05	3.84e+02	2.2e+03
15	1,2,3,7,8,9-HxCDD	1.14e+06	1.04e+02	1.1e+04	9.32e+05	3.84e+02	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	8.10e+05	2.28e+02	3.6e+03	7.54e+05	1.36e+02	5.5e+03
17	OCDD	7.59e+05	1.16e+02	6.5e+03	8.48e+05	1.68e+02	5.0e+03
18	13C-2,3,7,8-TCDF	1.90e+06	1.01e+03	1.9e+03	2.43e+06	6.64e+02	3.7e+03
19	13C-1,2,3,7,8-PeCDF	3.11e+06	6.80e+01	4.6e+04	2.00e+06	3.92e+02	5.1e+03
20	13C-2,3,4,7,8-PeCDF	3.28e+06	6.80e+01	4.8e+04	2.06e+06	3.92e+02	5.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.66e+06	3.24e+02	5.1e+03	3.14e+06	7.32e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.75e+06	3.24e+02	5.4e+03	3.35e+06	7.32e+02	4.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.63e+06	3.24e+02	5.0e+03	3.19e+06	7.32e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.43e+06	3.24e+02	4.4e+03	2.80e+06	7.32e+02	3.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.64e+05	1.03e+03	6.5e+02	1.49e+06	3.28e+02	4.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.35e+05	1.03e+03	8.1e+02	1.94e+06	3.28e+02	5.9e+03
27	13C-2,3,7,8-TCDD	1.53e+06	3.69e+03	4.1e+02	1.90e+06	1.18e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	2.52e+06	3.96e+02	6.4e+03	1.61e+06	2.28e+02	7.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.20e+06	1.29e+03	1.7e+03	1.72e+06	4.92e+02	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	2.10e+06	1.29e+03	1.6e+03	1.69e+06	4.92e+02	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.58e+06	4.08e+02	3.9e+03	1.48e+06	1.52e+02	9.8e+03
32	13C-OCDD	1.42e+06	2.36e+02	6.0e+03	1.58e+06	2.88e+02	5.5e+03
33	13C-1,2,3,4-TCDD	1.91e+06	3.69e+03	5.2e+02	2.46e+06	1.18e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.06e+06	1.29e+03	2.4e+03	2.45e+06	4.92e+02	5.0e+03
35	37Cl-2,3,7,8-TCDD	1.32e+06	9.52e+02	1.4e+03			

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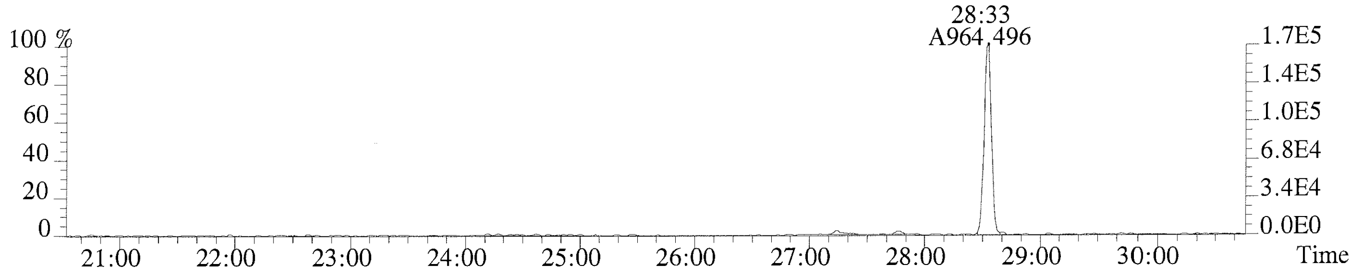
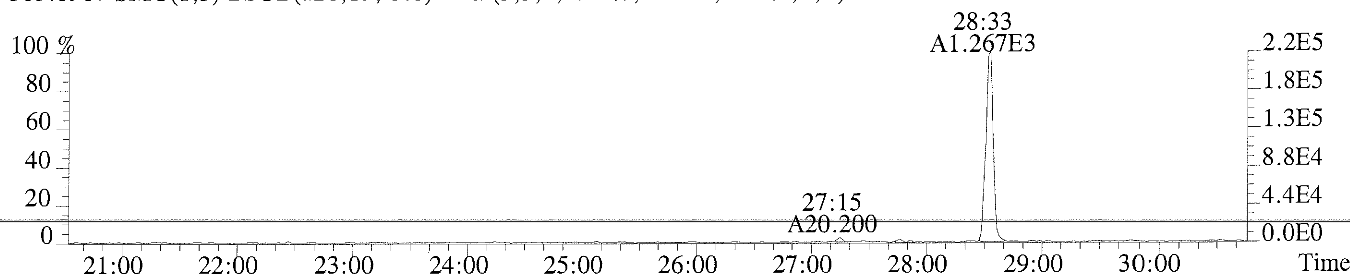
File:P174009 #1-788 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

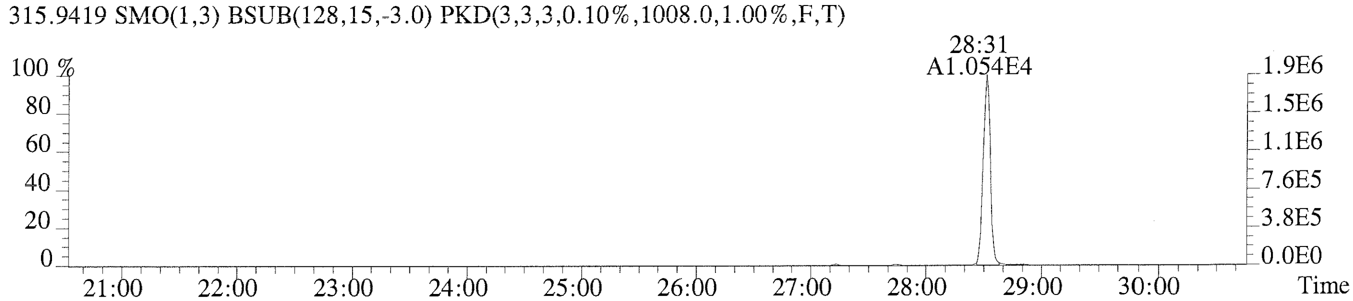
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



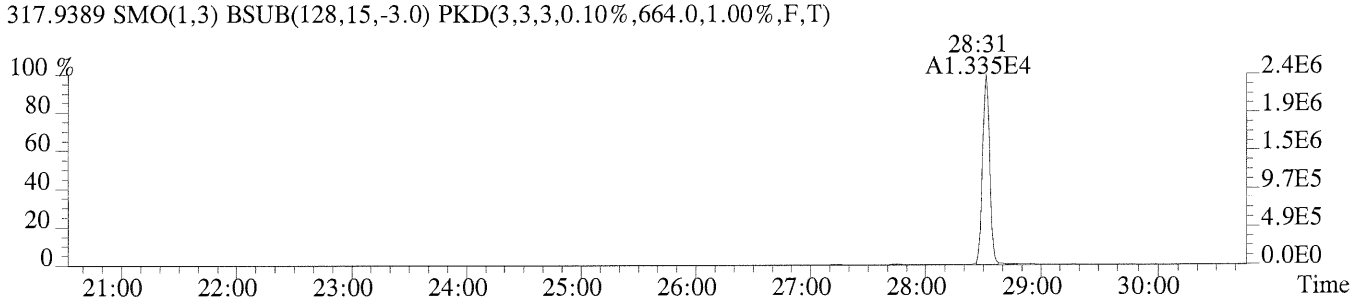
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



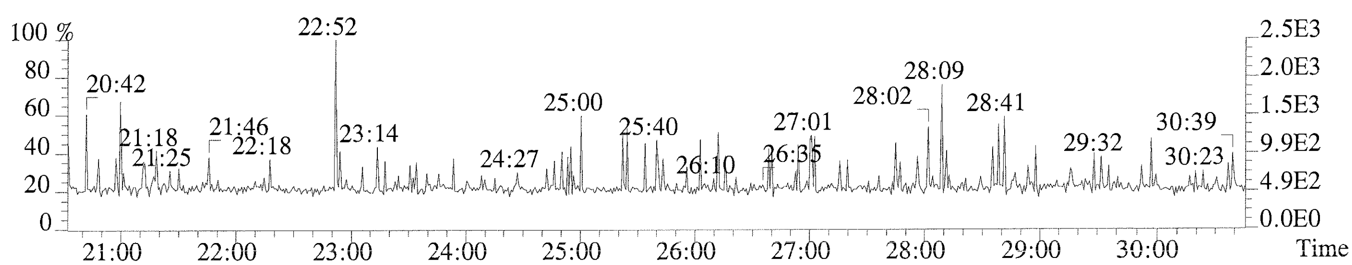
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



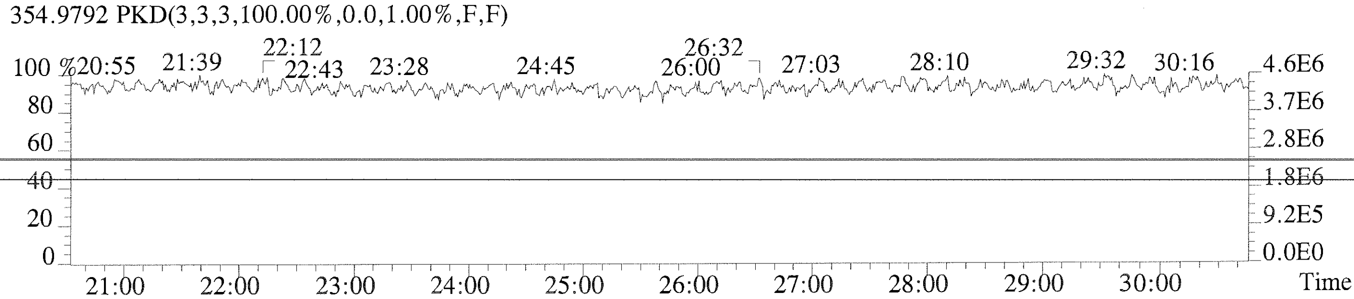
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

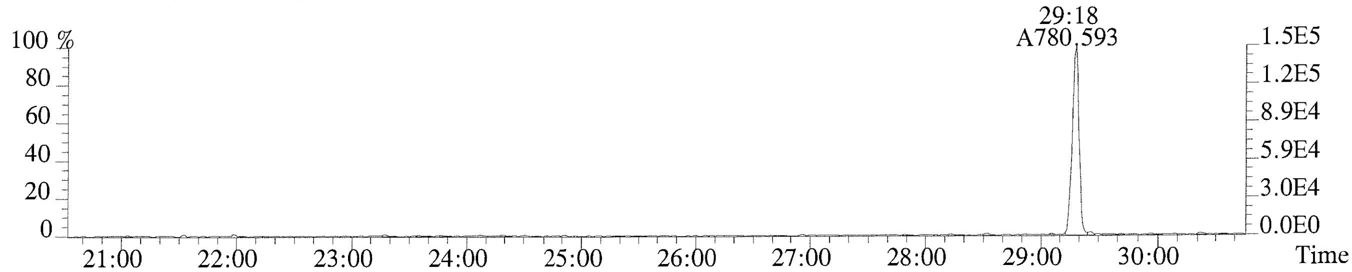


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

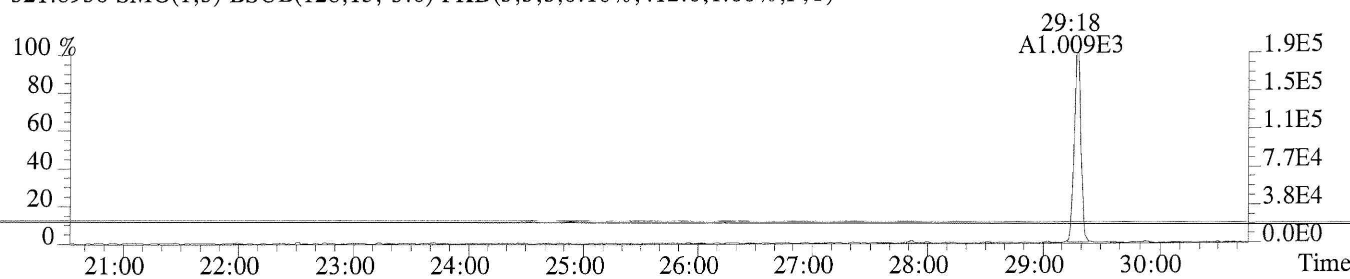


File:P174009 #1-788 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

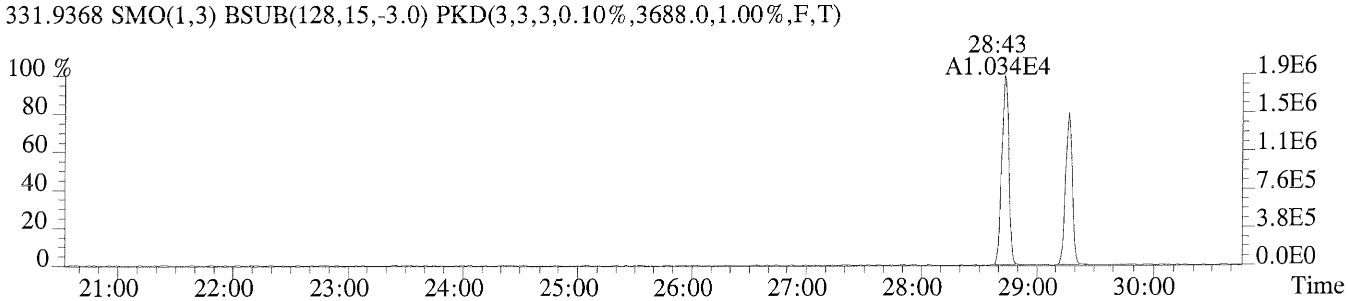
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



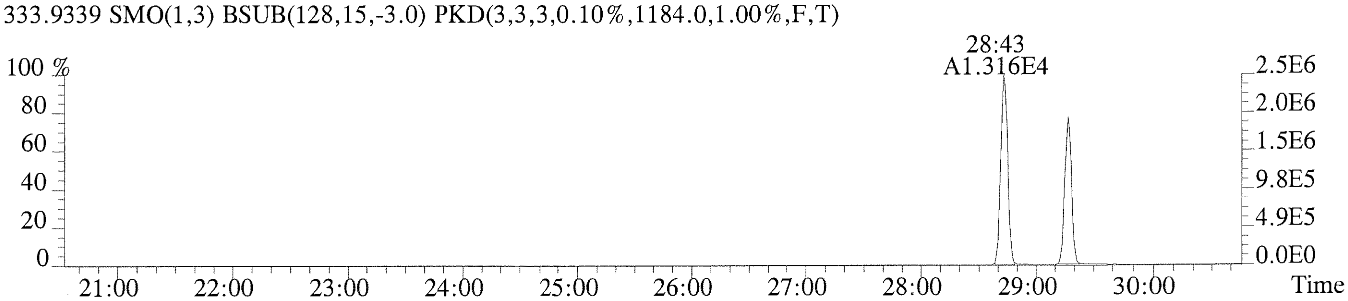
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



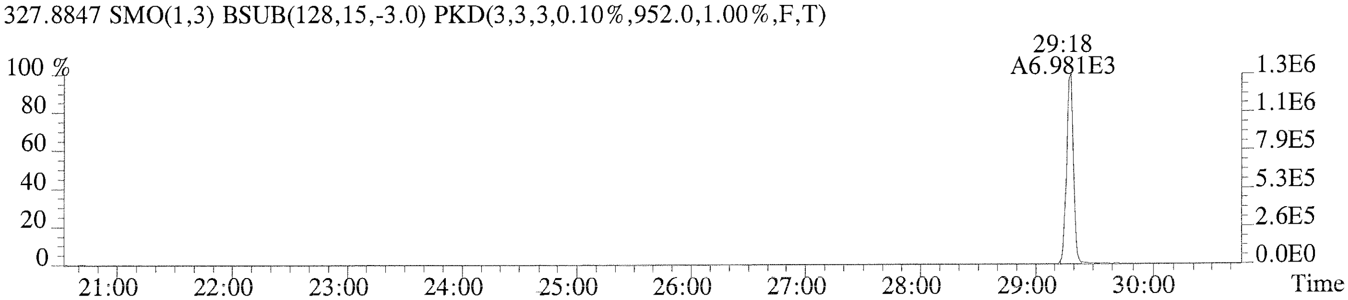
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3688.0,1.00%,F,T)



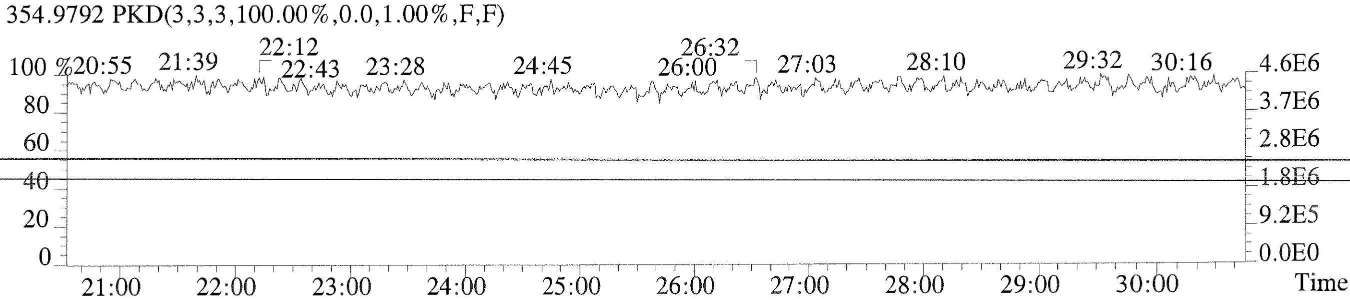
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



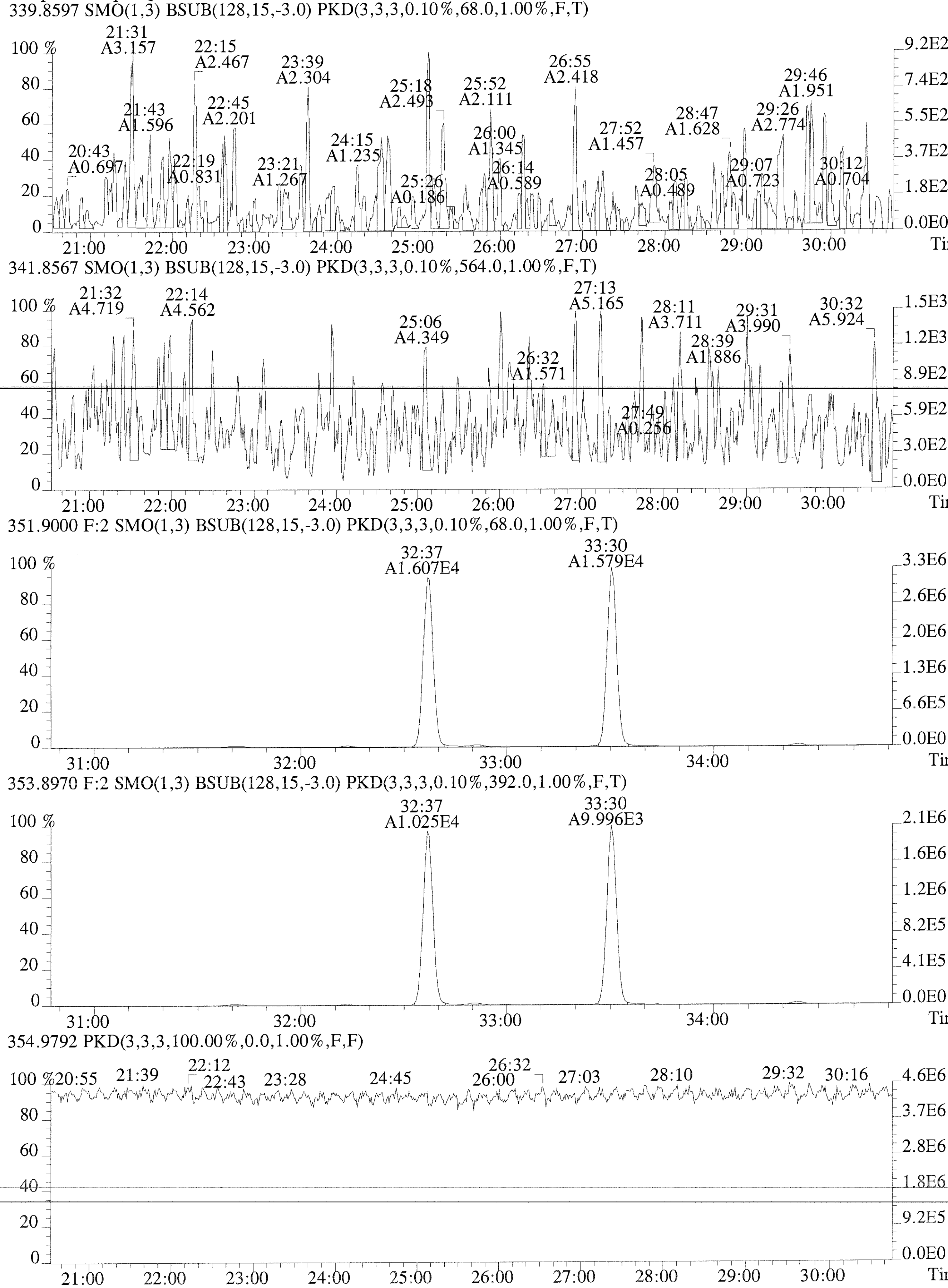
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

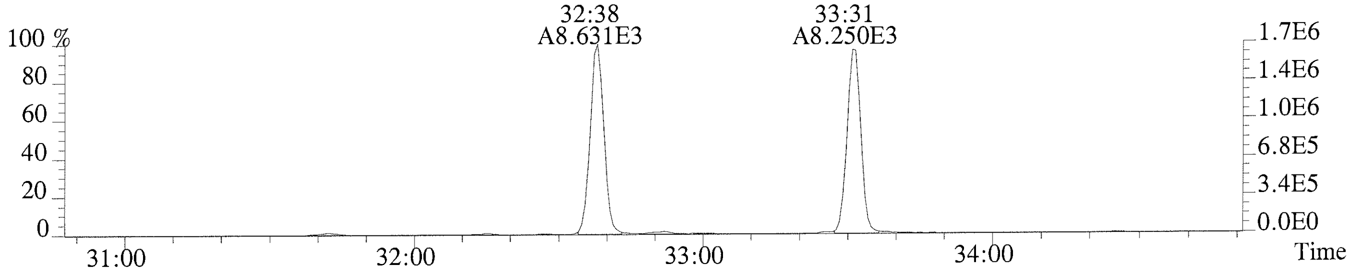


File:P174009 #1-788 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

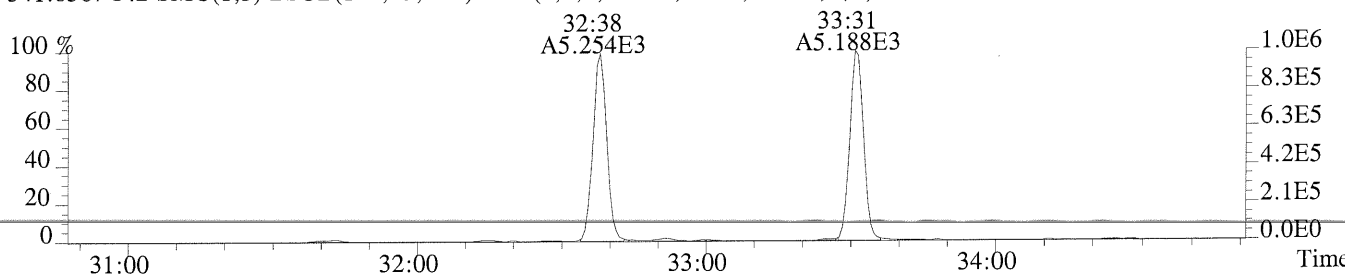


File:P174009 #1-369 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

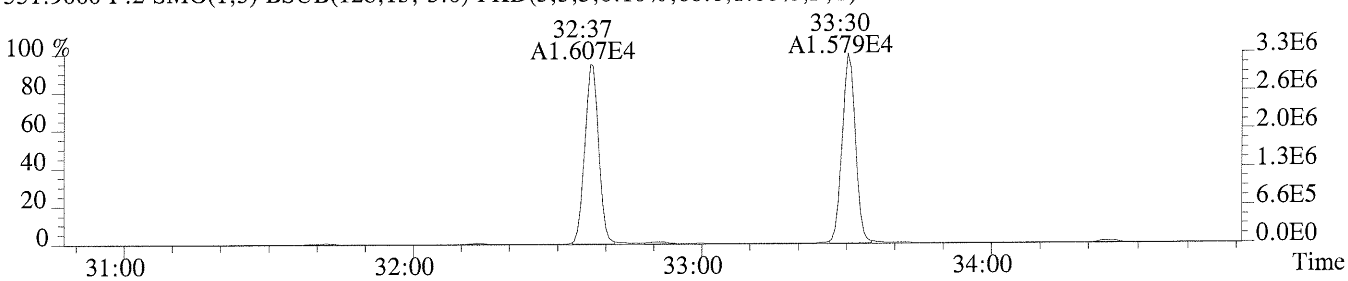
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



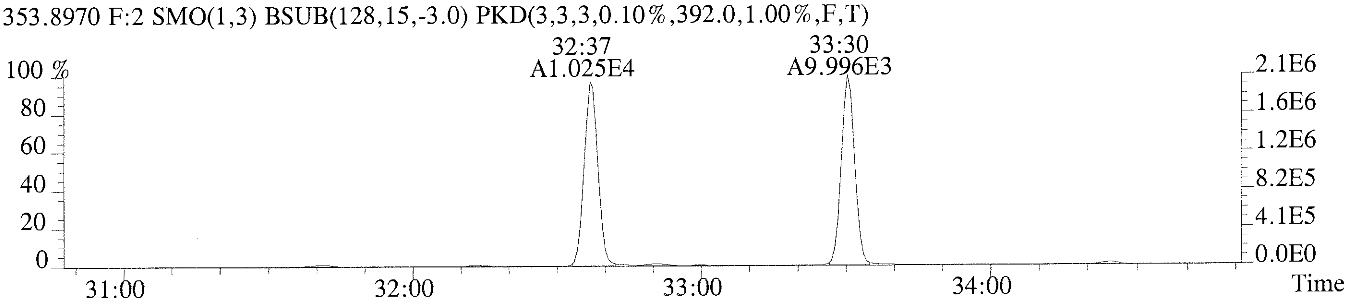
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



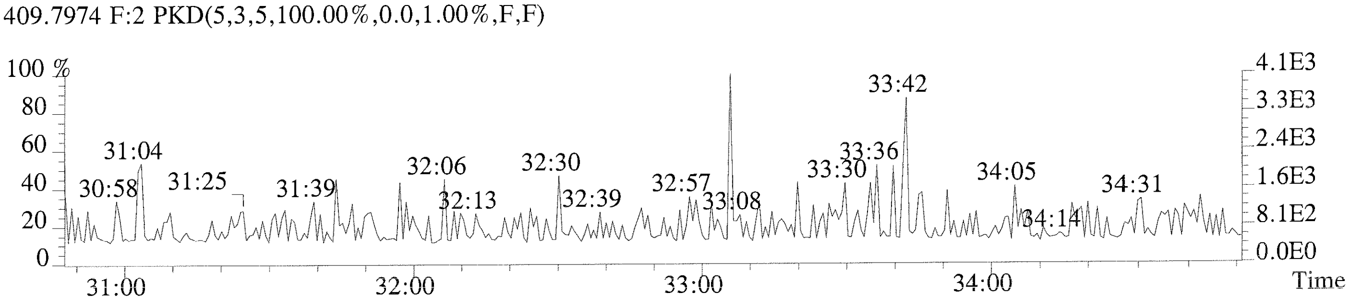
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



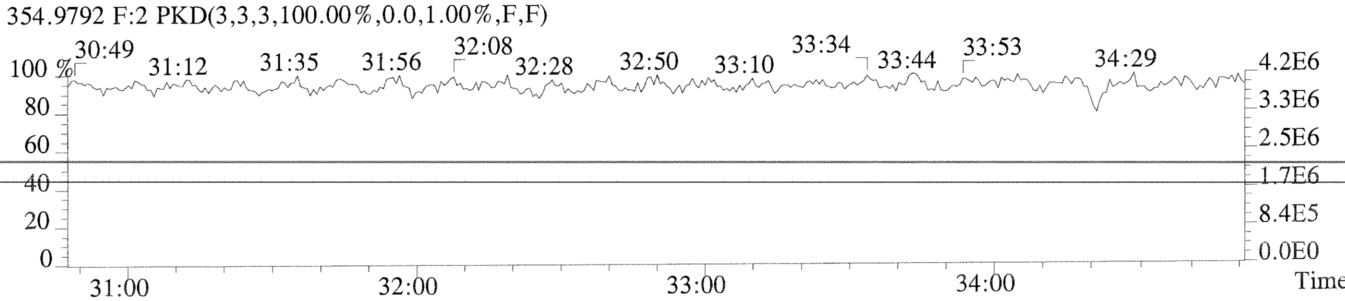
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



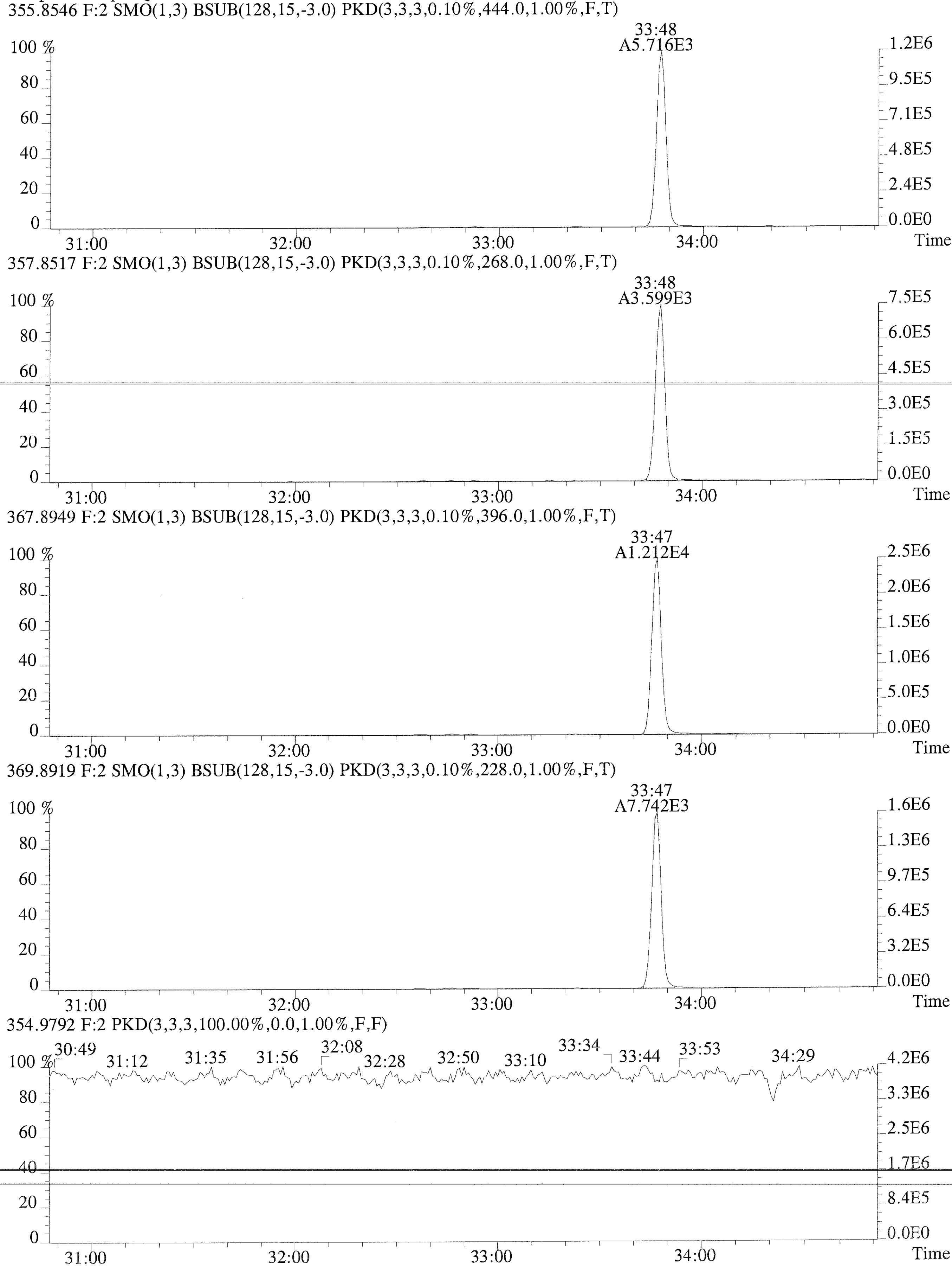
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

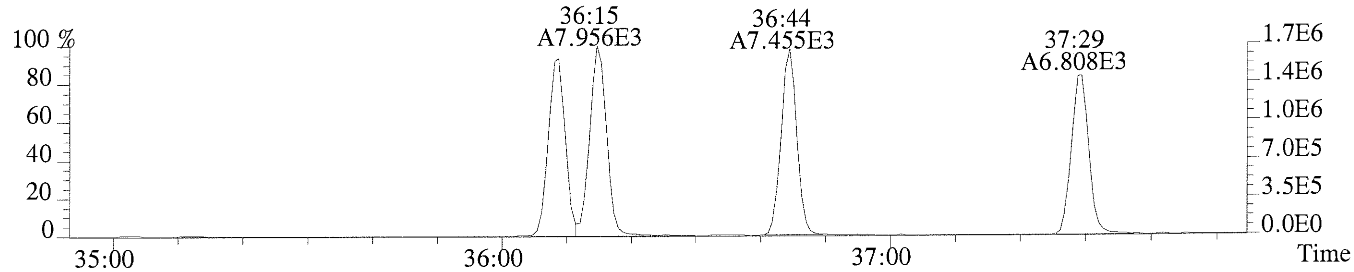


File:P174009 #1-369 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

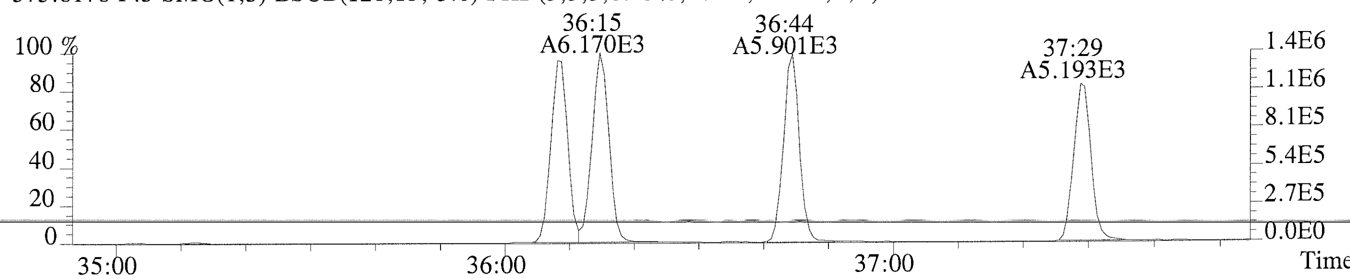


File:P174009 #1-275 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

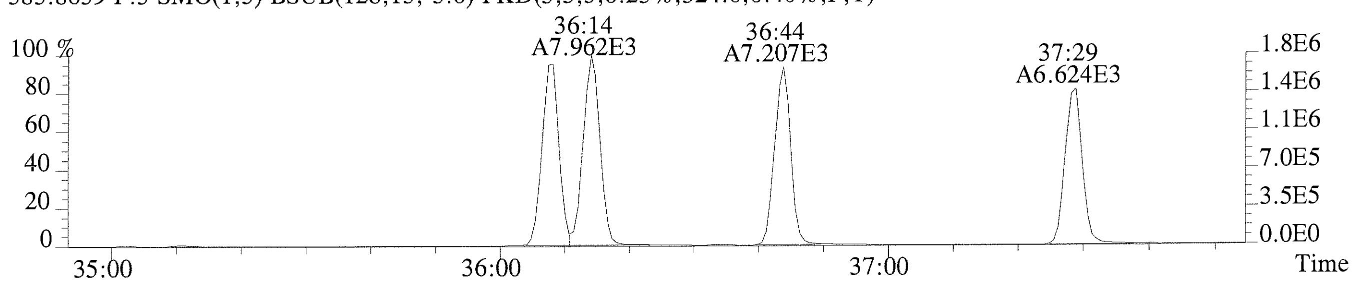
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



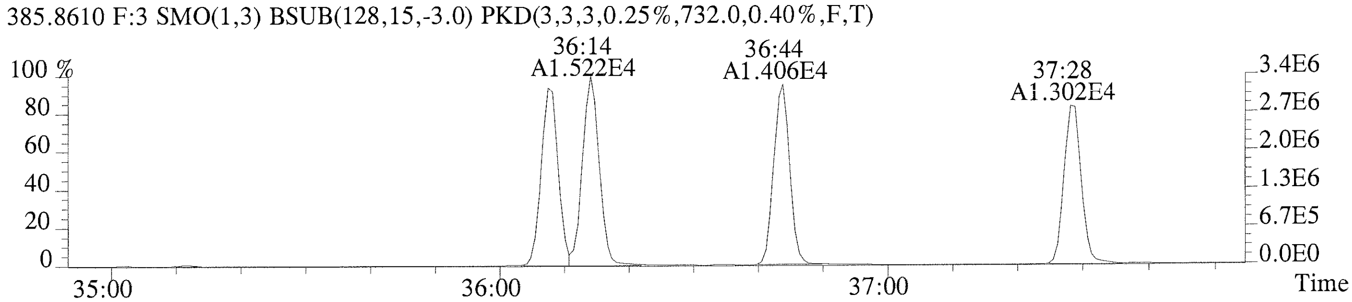
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



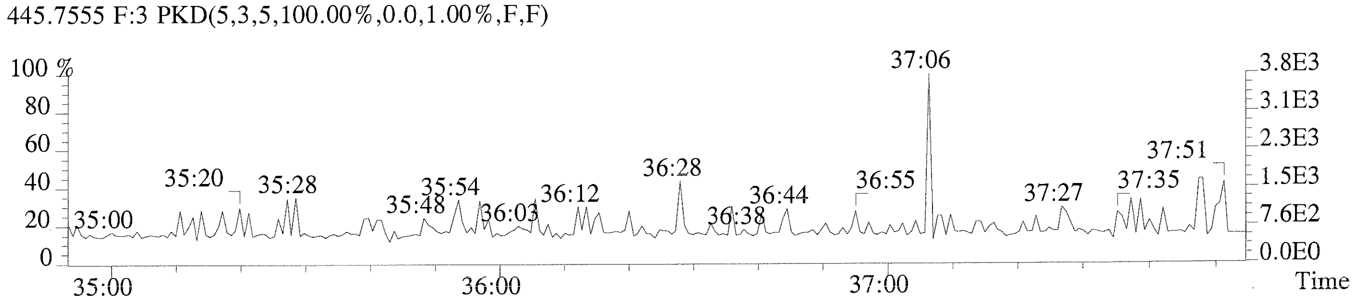
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



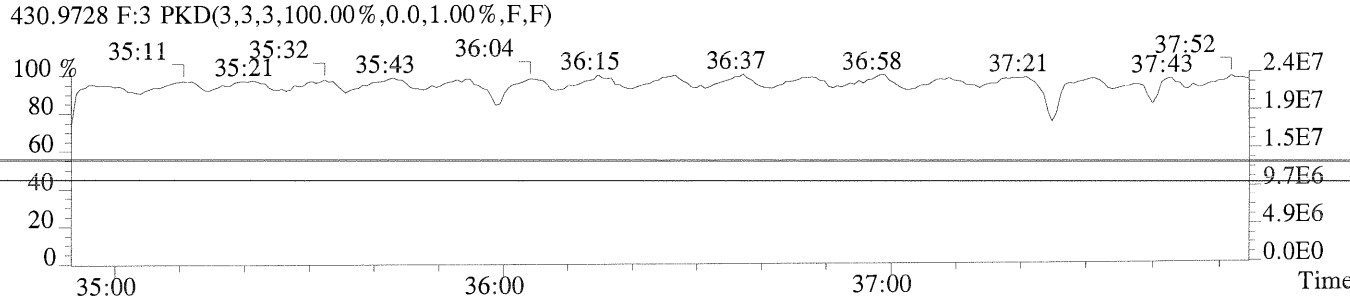
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



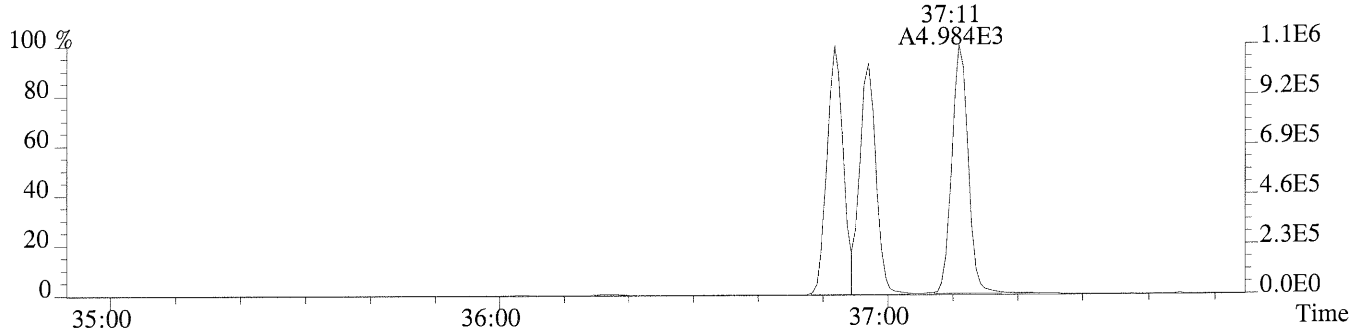
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



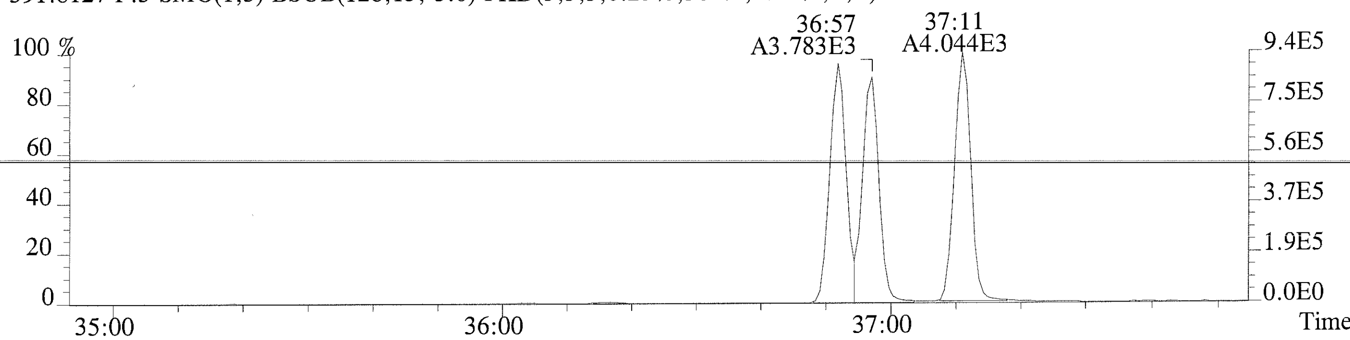
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



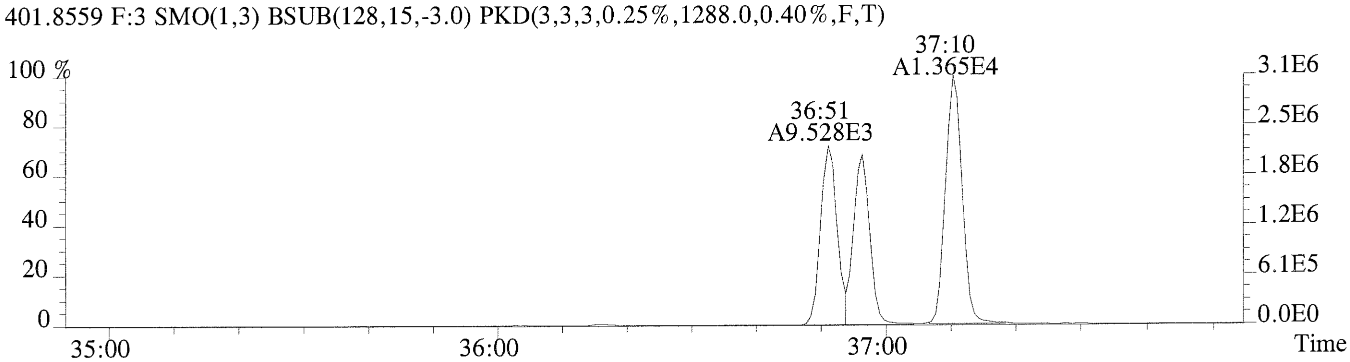
File:P174009 #1-275 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



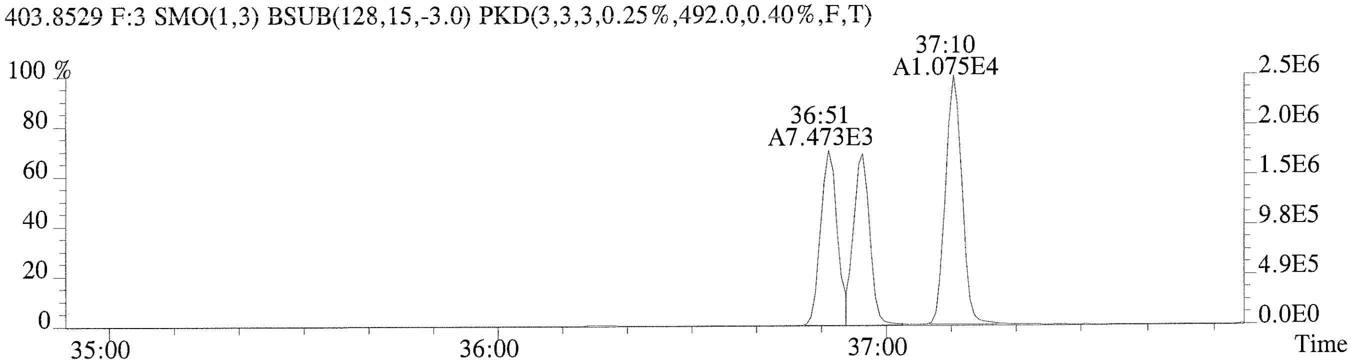
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



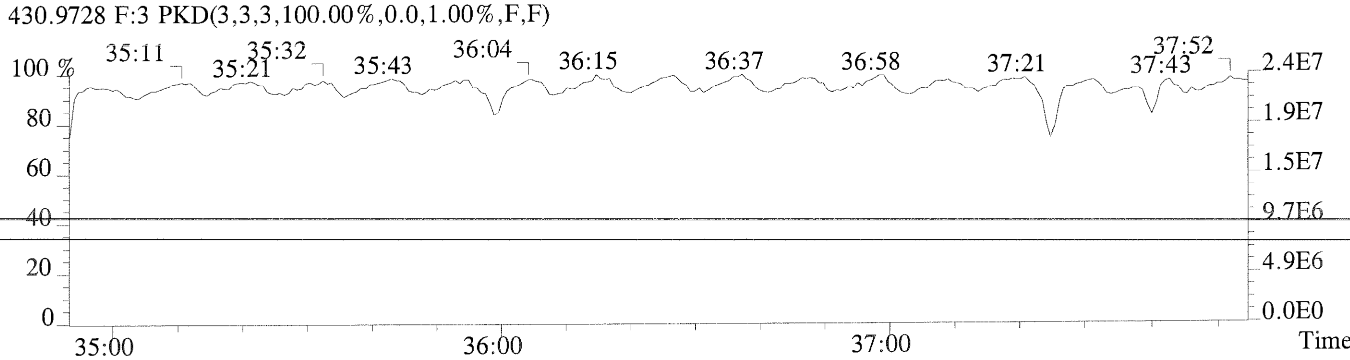
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)

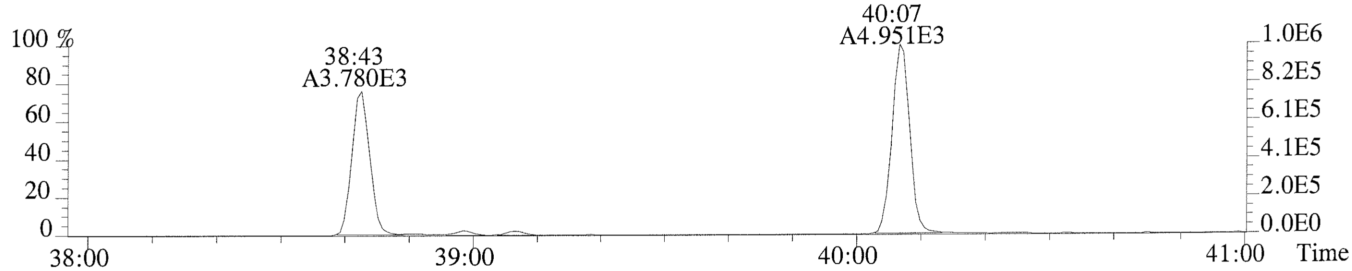


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

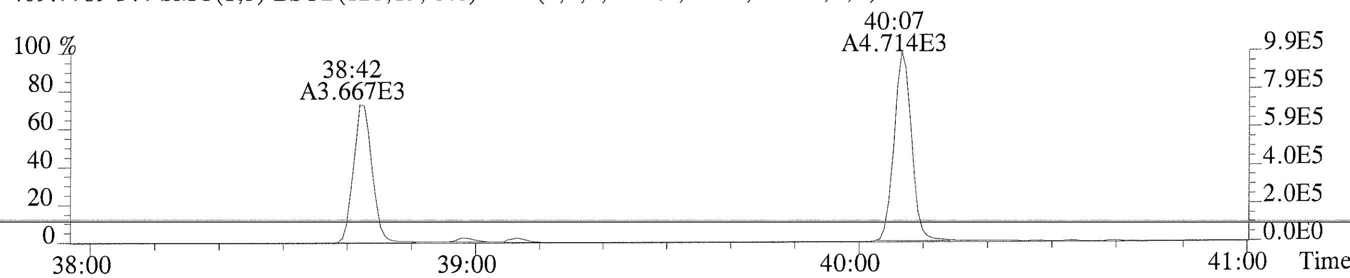


File:P174009 #1-278 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

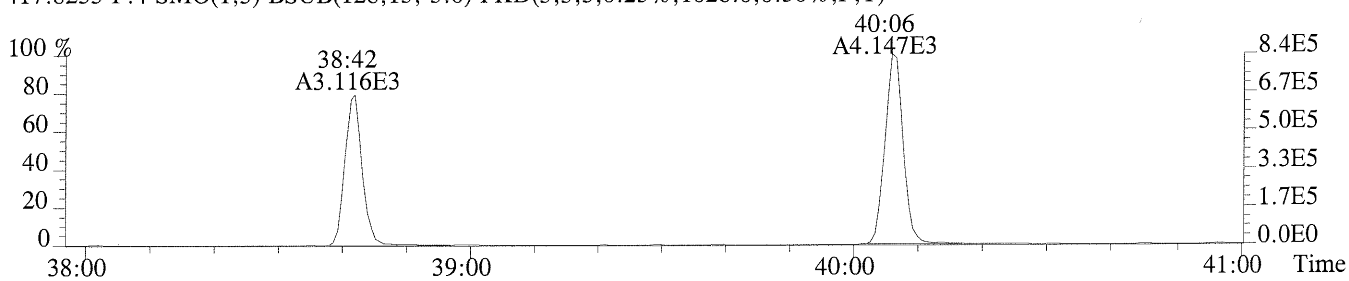
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



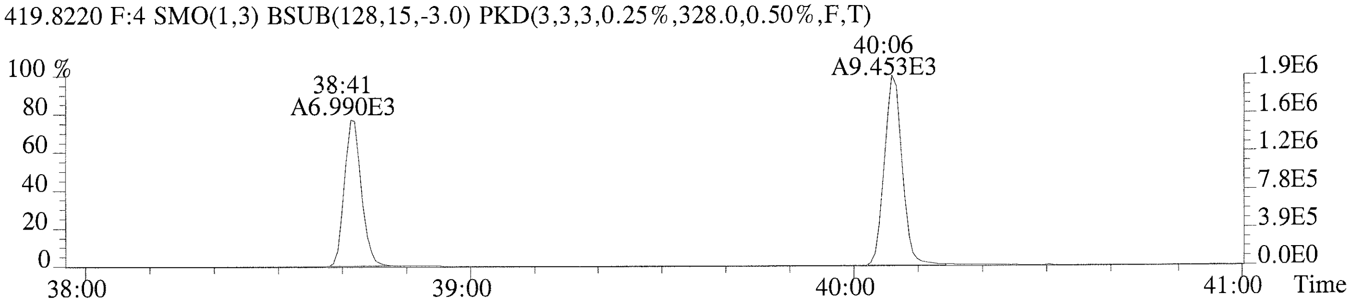
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.50%,F,T)



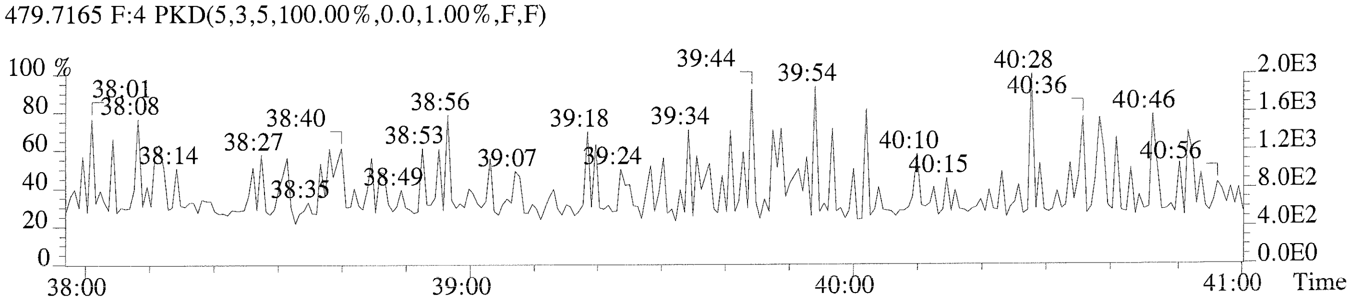
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.50%,F,T)



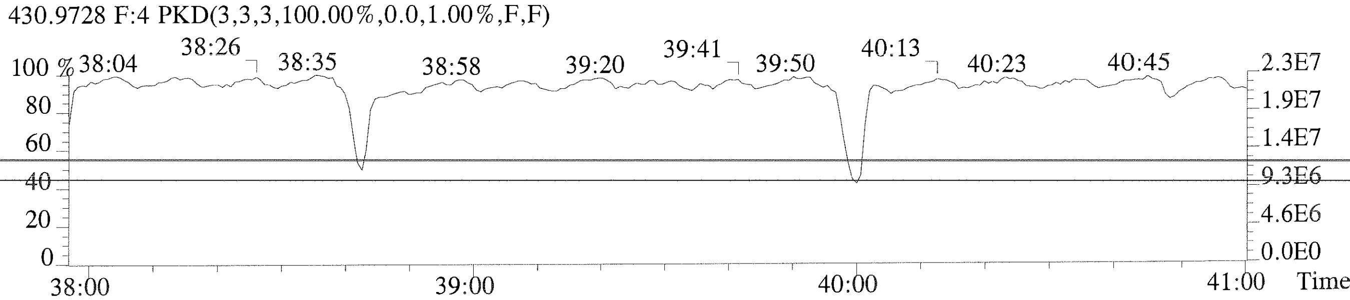
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

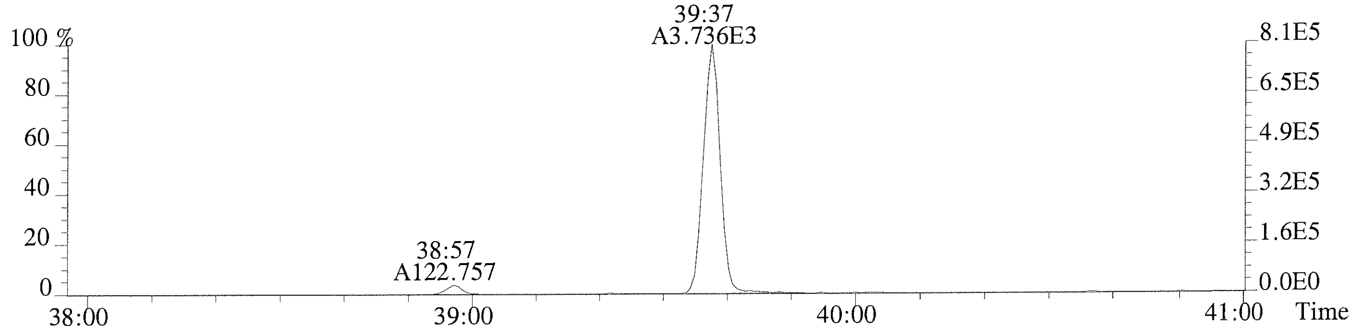


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

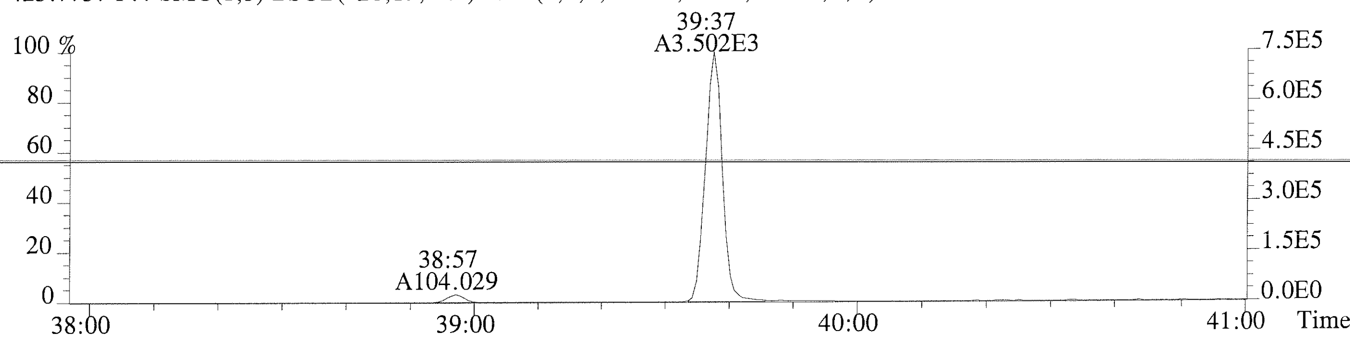


File:P174009 #1-278 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

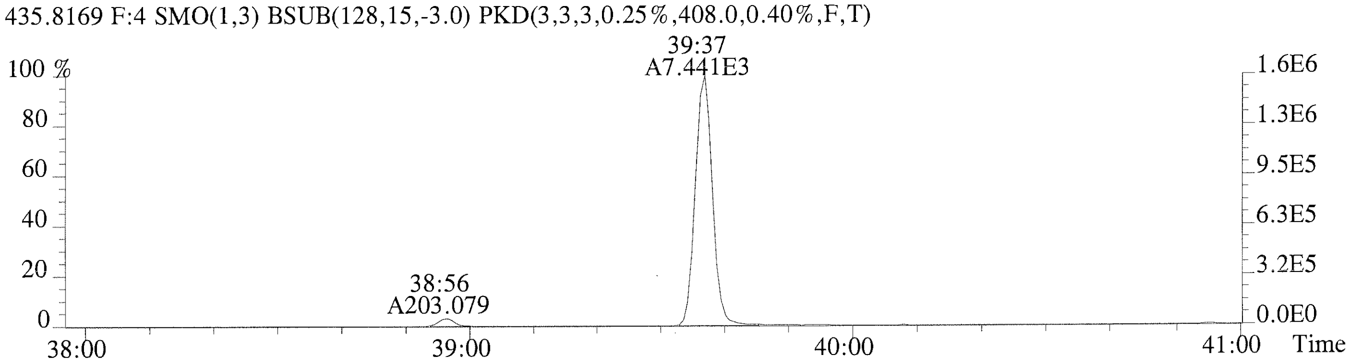
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



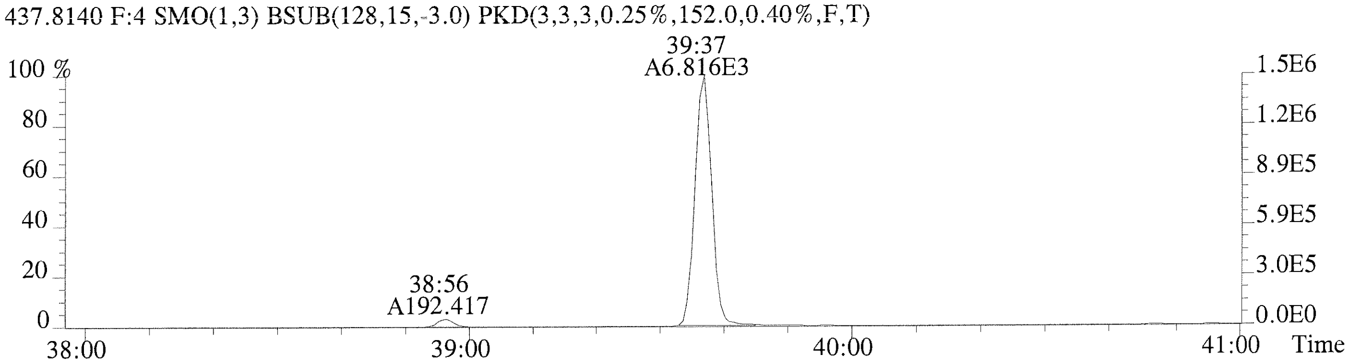
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



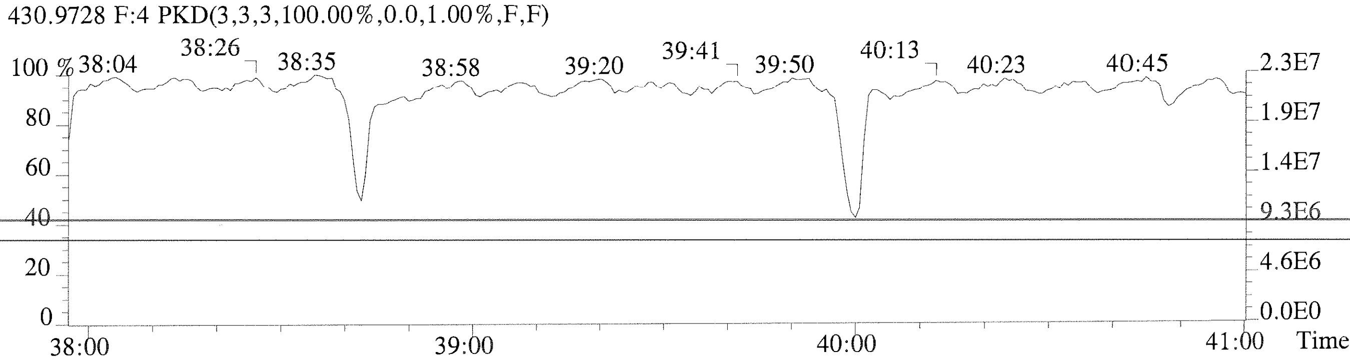
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



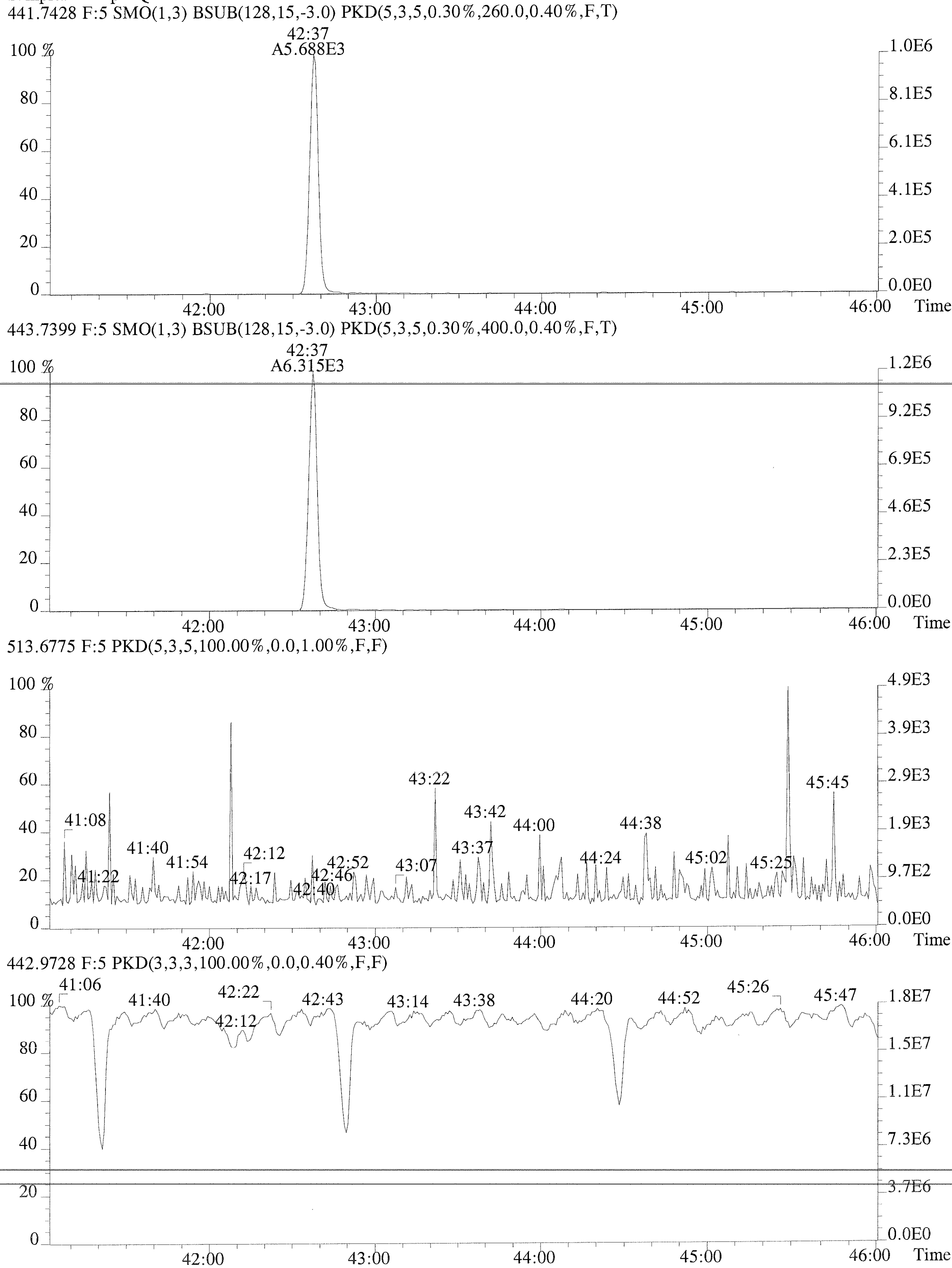
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

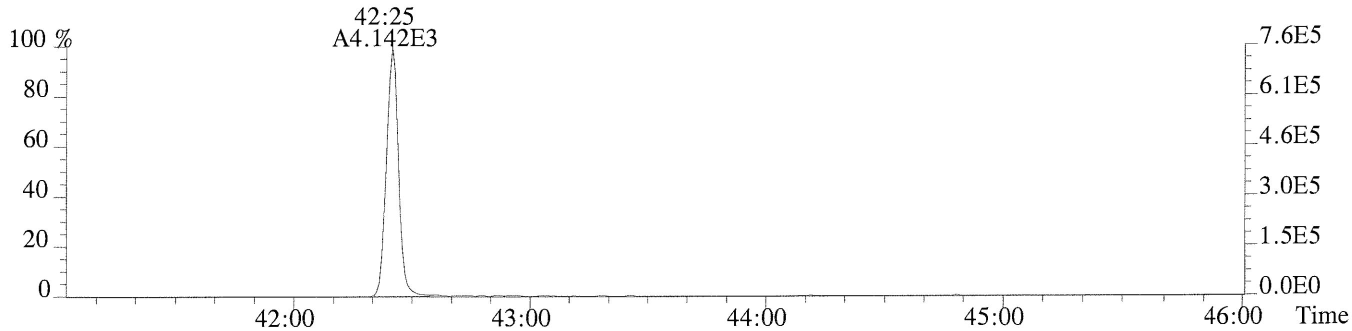


File:P174009 #1-457 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

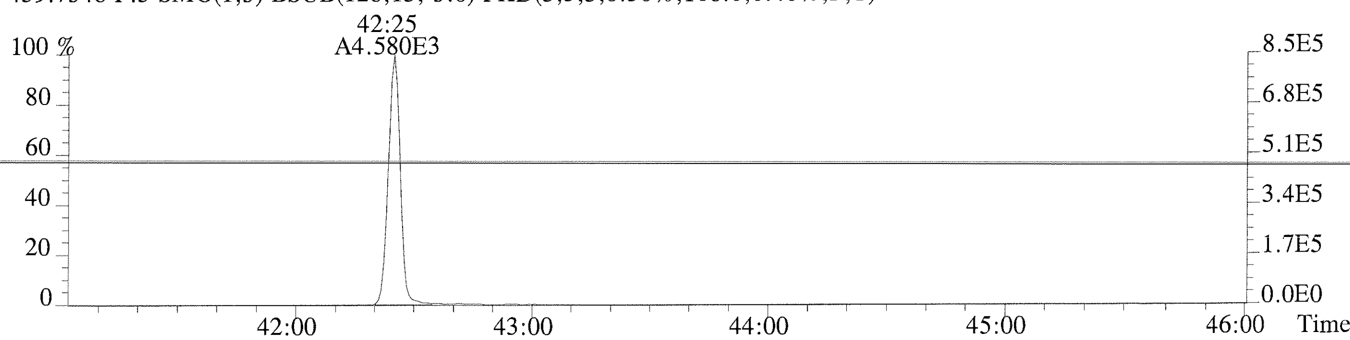


File:P174009 #1-457 Acq:10-OCT-2014 13:19:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400620-02

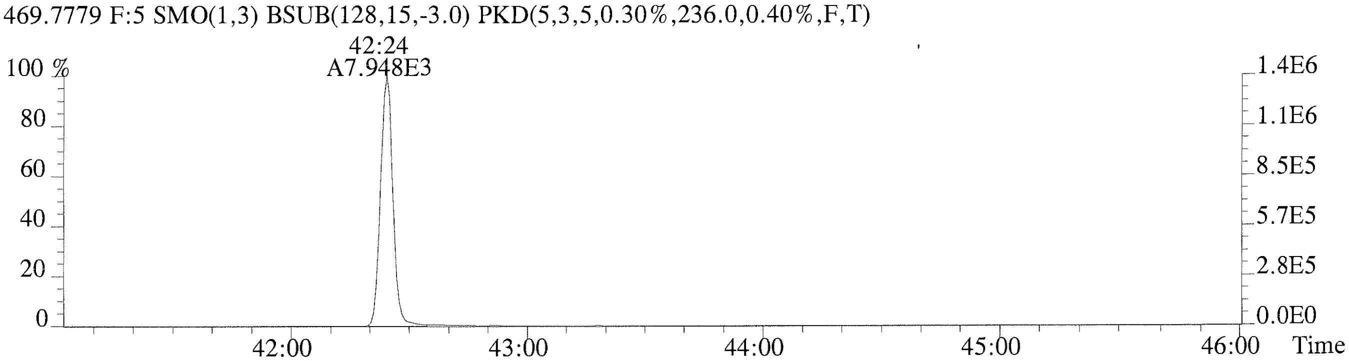
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,116.0,0.40%,F,T)



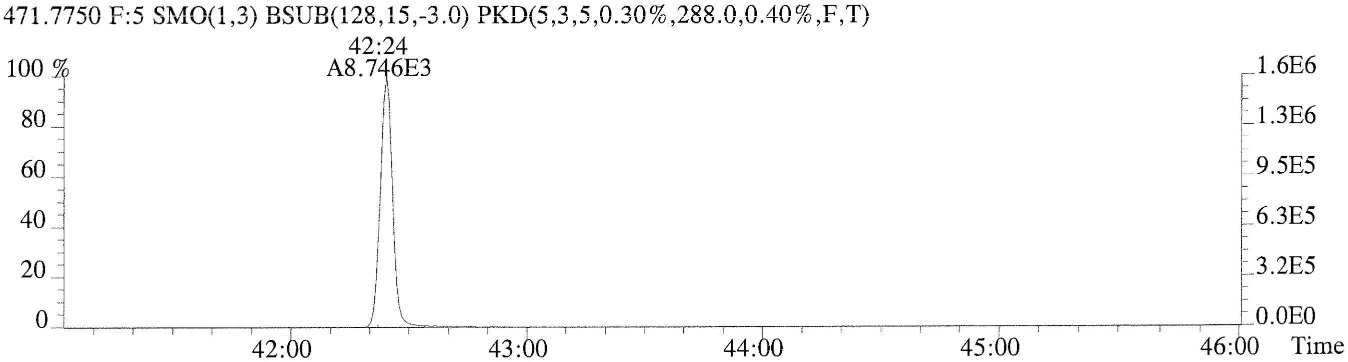
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



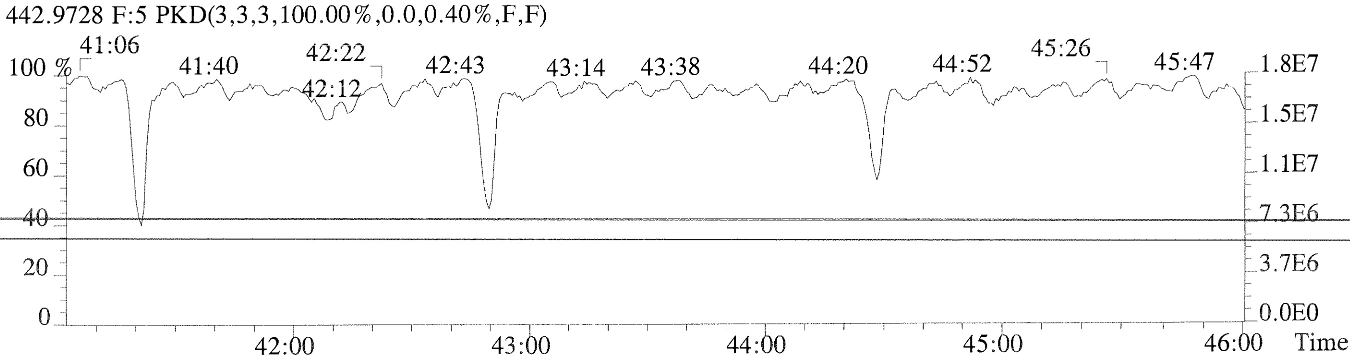
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P174000-P174010

Circle one: Beginning / Ending

Date: 10/10/14

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature] Second QC: [signature]

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 03/25/14

Init. Calib.Times: 16:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P174001	10-OCT-14	06:12:30
72675	CS3	P174000	10-OCT-14	05:24:23
METHOD BLANK	EQ1400624-01	P174002	10-OCT-14	07:00:38
BJ09LAA01-SP-29	E1401164-031	P174003	10-OCT-14	07:48:47
BJ09LAA01-SP-29-D	E1401164-032	P174004	10-OCT-14	08:36:55
BJ09LAA01-SP-30	E1401164-033	P174005	10-OCT-14	09:25:03
BJ09LAA01-SP-20 MS	EQ1400619-03	P174006	10-OCT-14	10:13:11
BJ09LAA01-SP-20 DMS	EQ1400619-04	P174007	10-OCT-14	11:01:19
SBA-ESI-15	E1401160-002	P174008	10-OCT-14	12:30:09
LCS	EQ1400620-02	P174009	10-OCT-14	13:19:55
72675	CS3	P174010	10-OCT-14	14:08:03

Sample List Report **MassLynx 4.1**

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1141010B.SPL
Last Modified: Friday, October 10, 2014 11:50:54 Central Daylight Time
Printed: Friday, October 10, 2014 12:07:27 Central Daylight Time Page Position (1, 1)

e: P174000res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/10/14	05:24	P174000	CS3	72675	LL	HRMS check 11:23	8290cas
2		06:12	P174001	WINDOW DEFINE	63680			8290cas
3		07:00	P174002	EQ1400624-01	MB			8290cas
4		07:48	P174003	E1401164-031	E1401164-031			8290cas
5		08:36	P174004	E1401164-032	E1401164-032			8290cas
6		09:25	P174005	E1401164-033	E1401164-033			8290cas
7		10:13	P174006	EQ1400619-03	LCS			8290cas
8		11:01	P174007	EQ1400619-04	DLCS			8290cas
9		12:30	P174008	E1401160-002	E1401160-002		HRMS Check 11:55	8290cas
10		13:19	P174009	EQ1400620-02	LCS			8290cas
11		14:08	P174010	CS3	72675		HRMS Check 15:04	8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
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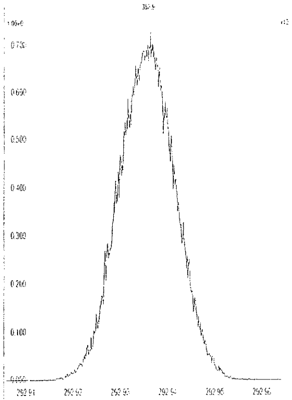
Reviewed By: JC 10/10/14

084

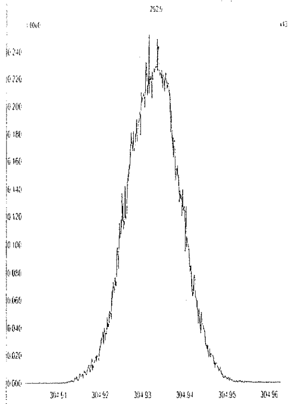
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, October 09, 2014 11:23:35 Central Daylight Time

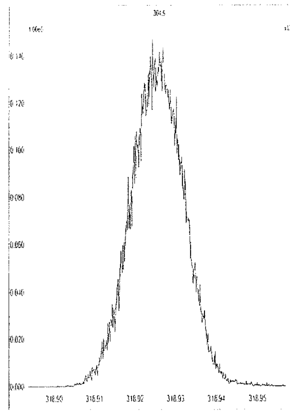
M 292.9824 R 10503



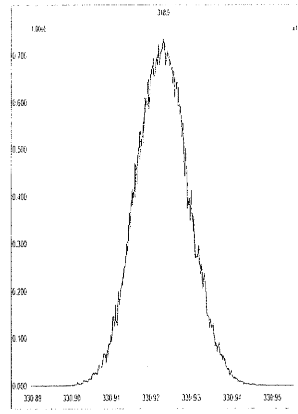
M 304.9824 R 10680



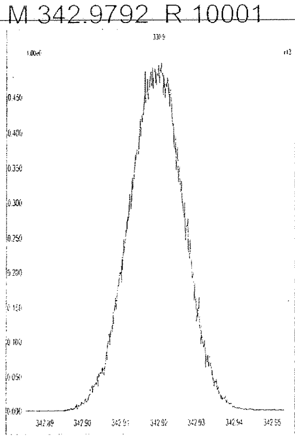
M 318.9792 R 10684



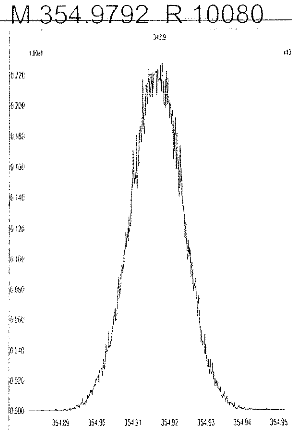
M 330.9792 R 10286



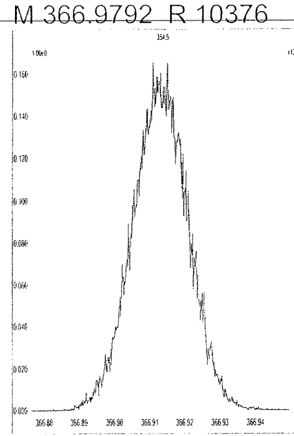
M 342.9792 R 10001



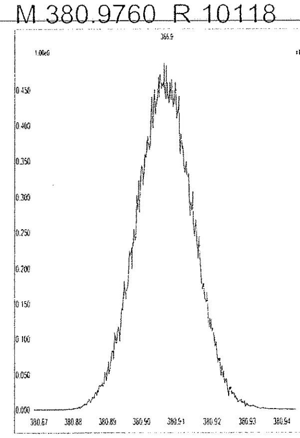
M 354.9792 R 10080



M 366.9792 R 10376



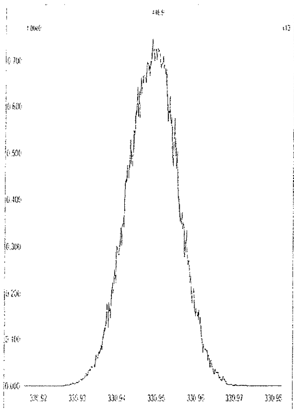
M 380.9760 R 10118



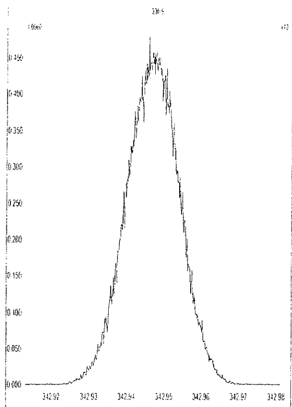
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, October 09, 2014 11:24:44 Central Daylight Time

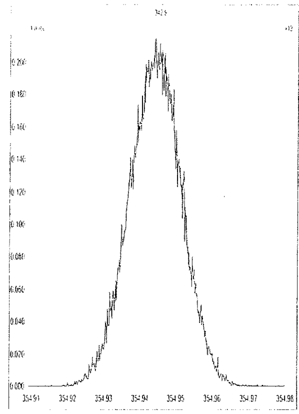
M 330.9792 R 10683



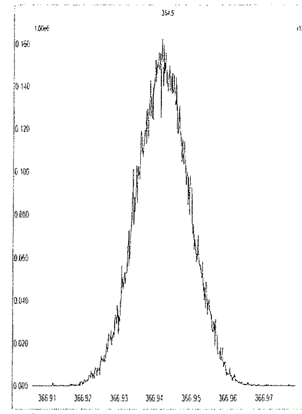
M 342.9792 R 10414



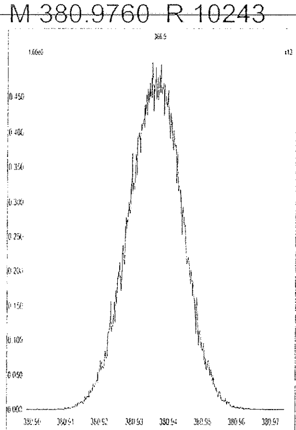
M 354.9792 R 10684



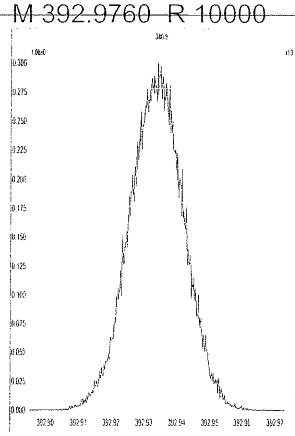
M 366.9792 R 10547



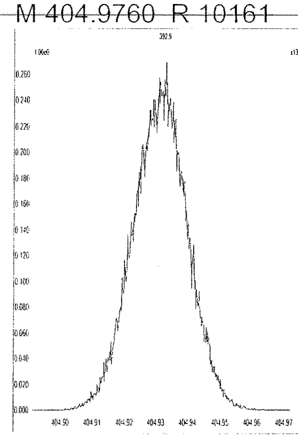
M 380.9760 R 10243



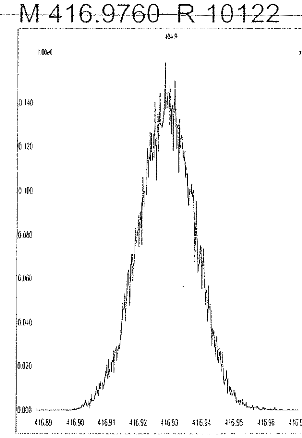
M 392.9760 R 10000



M 404.9760 R 10161



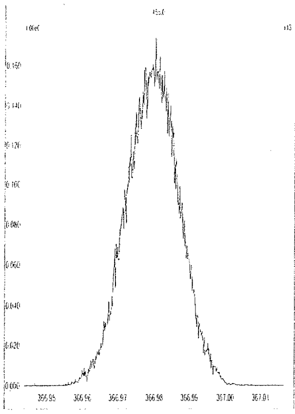
M 416.9760 R 10122



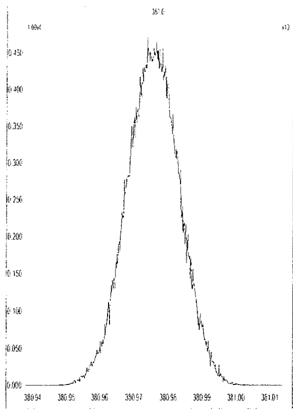
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, October 09, 2014 11:26:44 Central Daylight Time

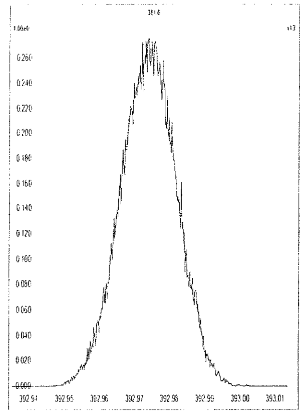
M 366.9792 R 10638



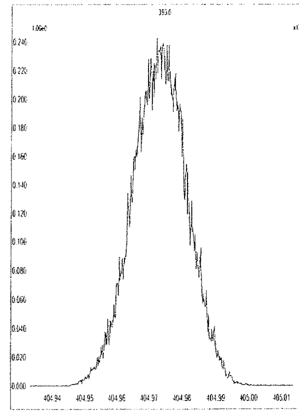
M 380.9760 R 10203



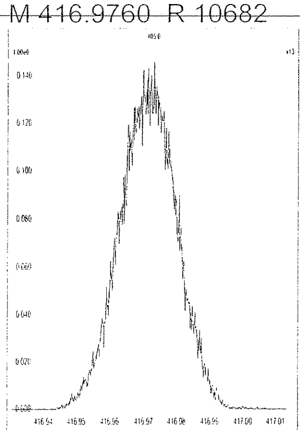
M 392.9760 R 10590



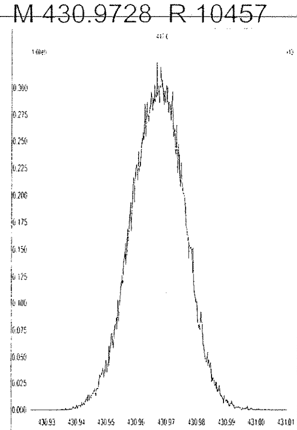
M 404.9760 R 10162



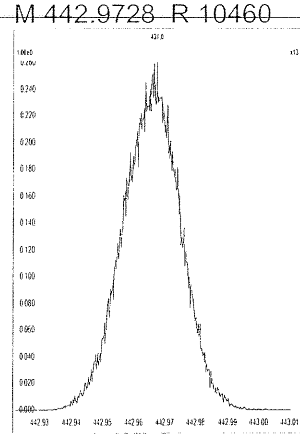
M 416.9760 R 10682



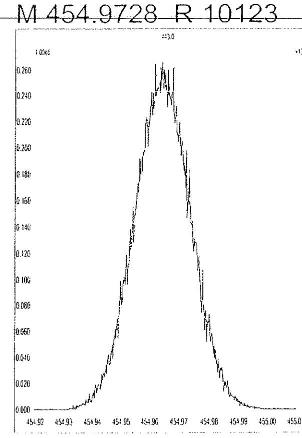
M 430.9728 R 10457



M 442.9728 R 10460



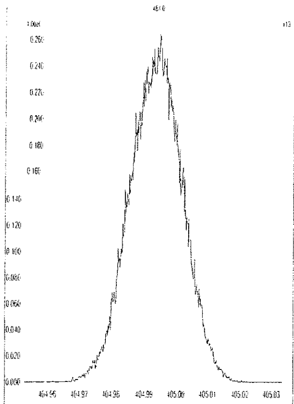
M 454.9728 R 10123



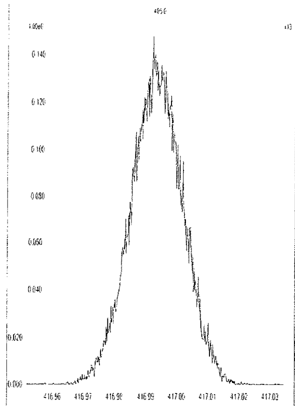
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, October 09, 2014 11:27:37 Central Daylight Time

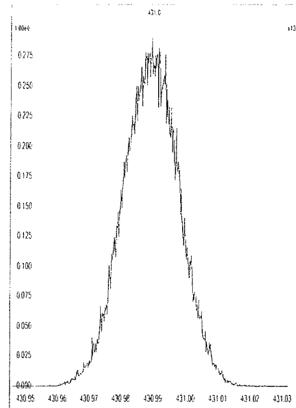
M 404.9760 R 10730



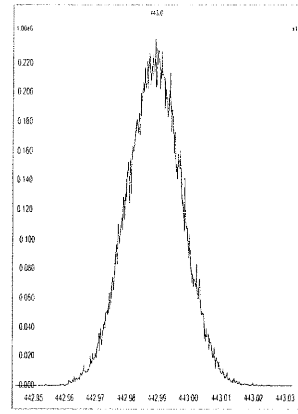
M 416.9760 R 10592



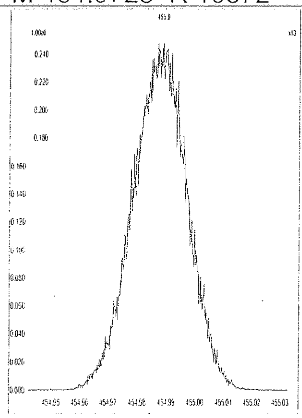
M 430.9728 R 10247



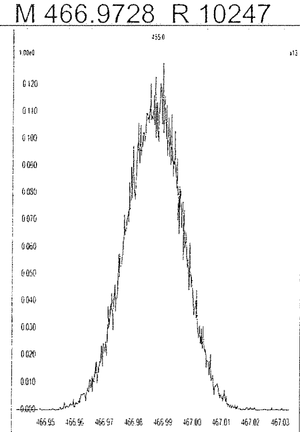
M 442.9728 R 10545



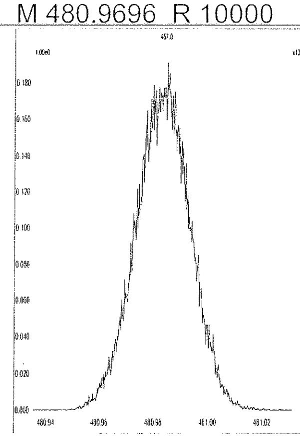
M 454.9728 R 10372



M 466.9728 R 10247



M 480.9696 R 10000



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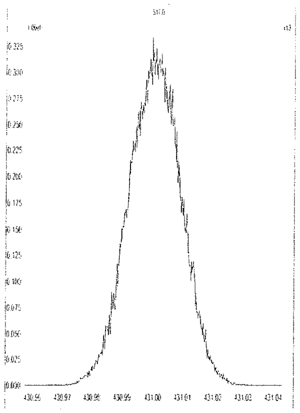
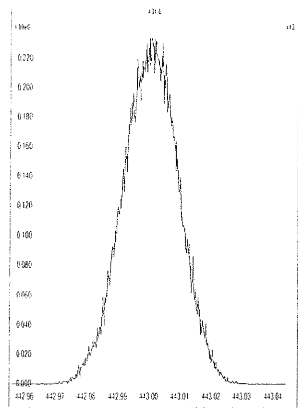
Printed: Thursday, October 09, 2014 11:30:10 Central Daylight Time

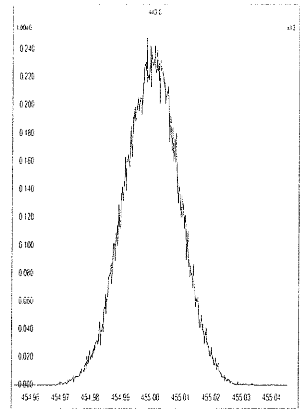
M 430.9728 R 10686



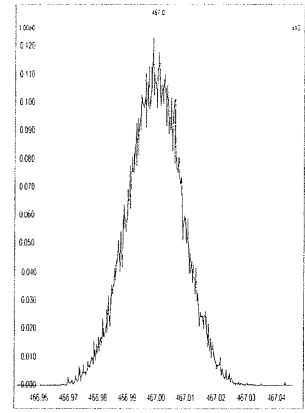
M 442.9728 R 10370



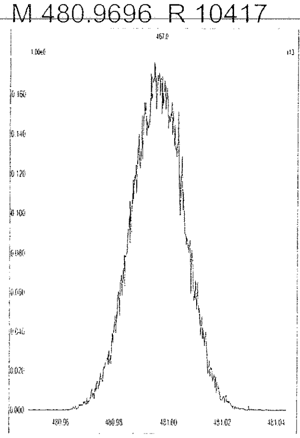
M 454.9728 R 10373



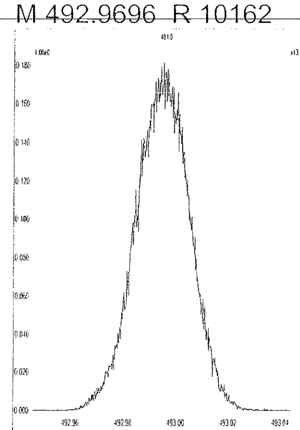
M 466.9728 R 10332



M 480.9696 R 10417



M 492.9696 R 10162



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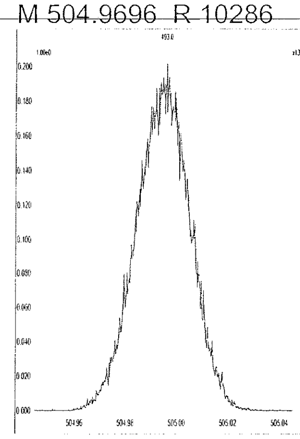
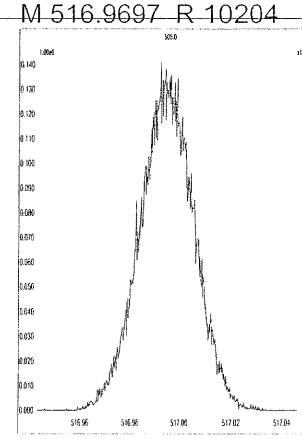


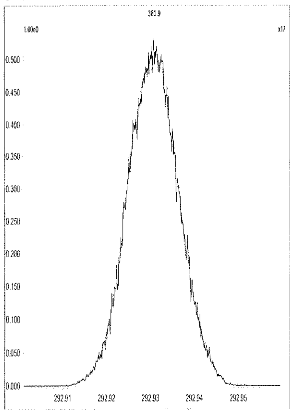
M 516.9697 R 10204



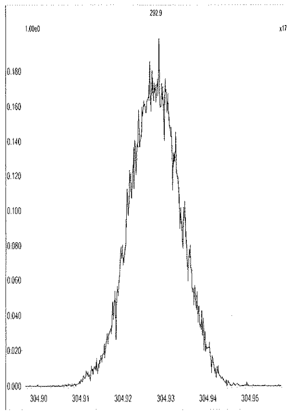
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, October 10, 2014 11:55:00 Central Daylight Time

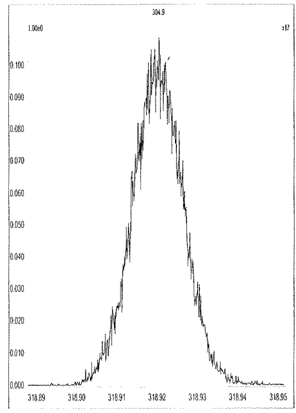
M 292.9824 R 10774



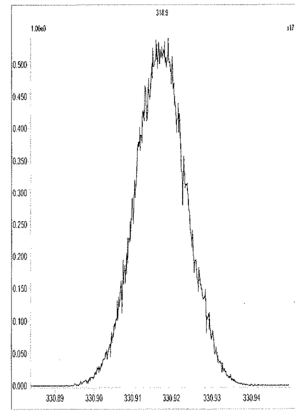
M 304.9824 R 11365



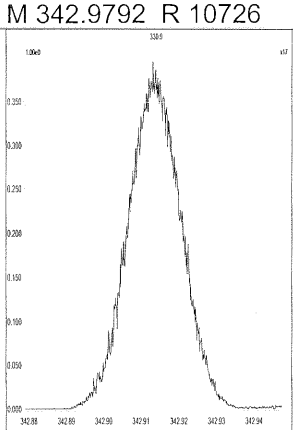
M 318.9792 R 10776



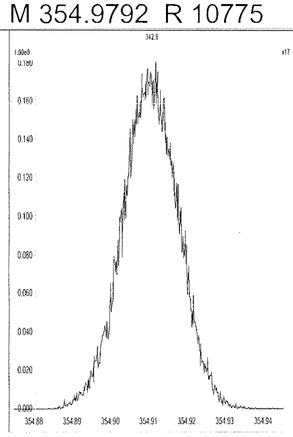
M 330.9792 R 10774



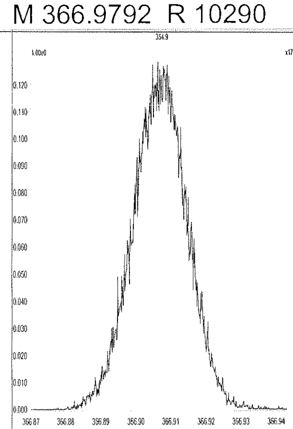
M 342.9792 R 10726



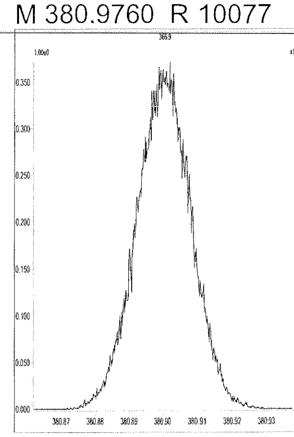
M 354.9792 R 10775



M 366.9792 R 10290



M 380.9760 R 10077

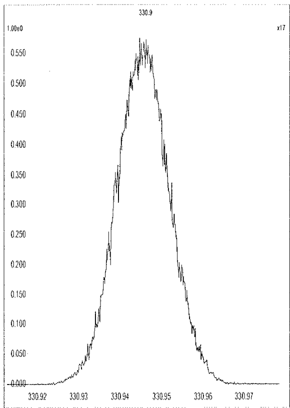


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

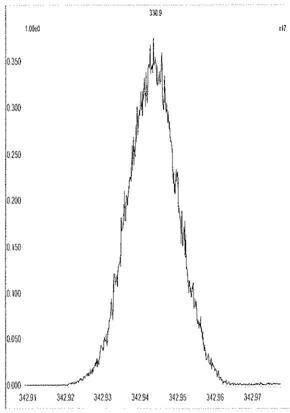
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, October 10, 2014 11:57:37 Central Daylight Time

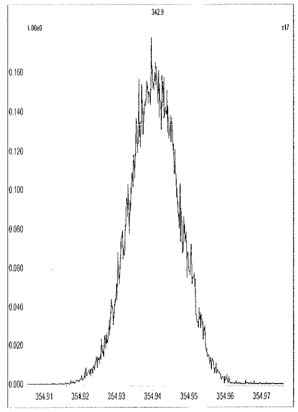
M 330.9792 R 10821



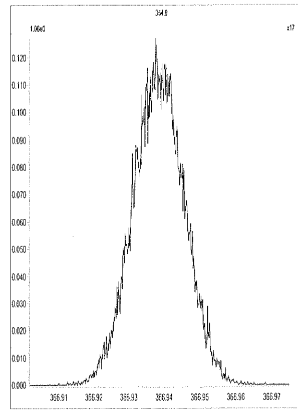
M 342.9792 R 10595



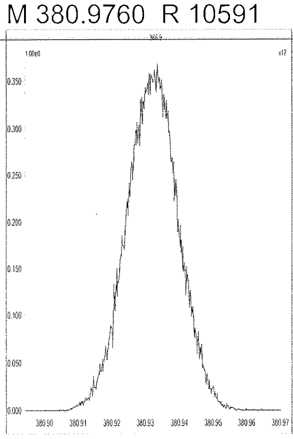
M 354.9792 R 10776



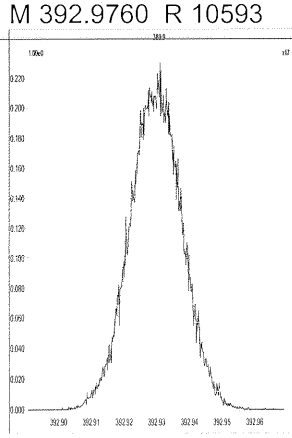
M 366.9792 R 10415



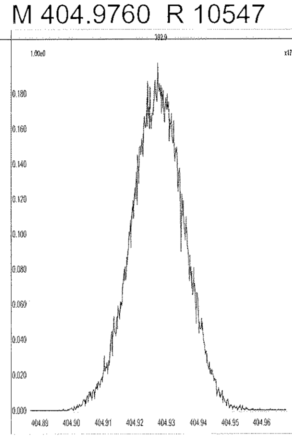
M 380.9760 R 10591



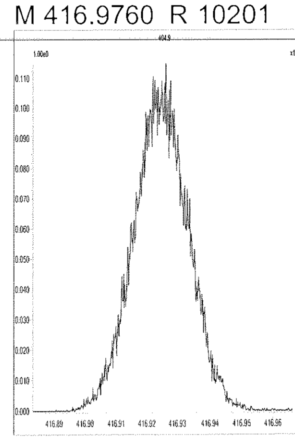
M 392.9760 R 10593



M 404.9760 R 10547



M 416.9760 R 10201

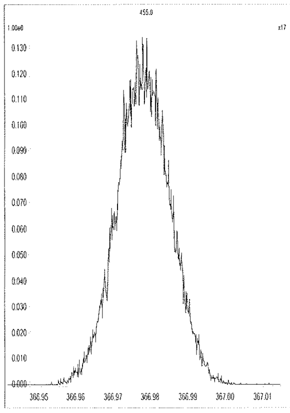


Experiment Calibration Report **MassLynx 4.1**

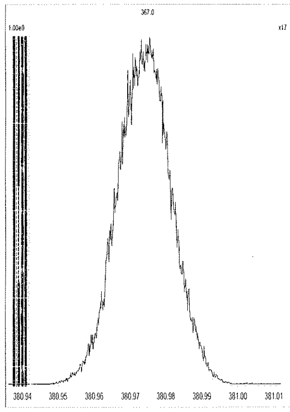
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, October 10, 2014 11:58:38 Central Daylight Time

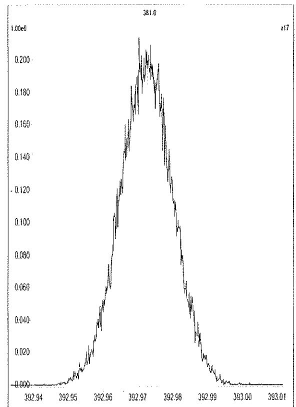
M 366.9792 R 10822



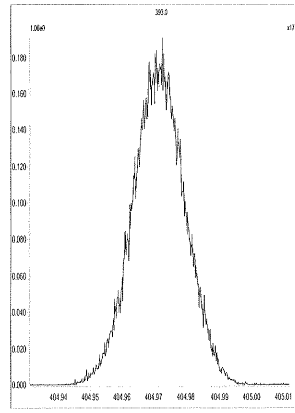
M 380.9760 R 10774



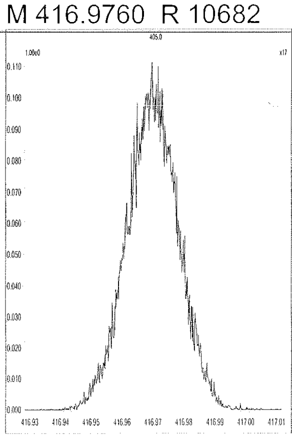
M 392.9760 R 10773



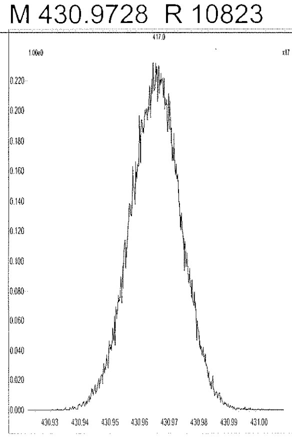
M 404.9760 R 10548



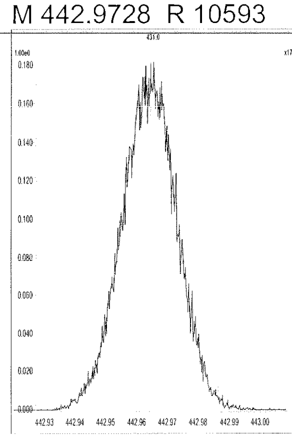
M 416.9760 R 10682



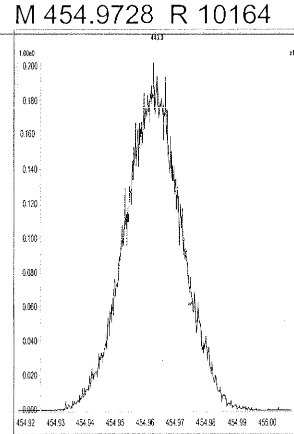
M 430.9728 R 10823



M 442.9728 R 10593



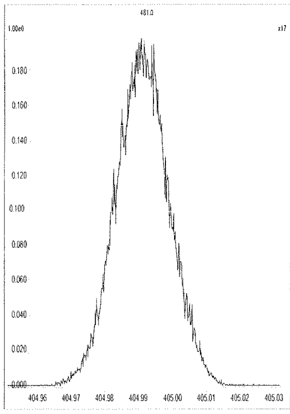
M 454.9728 R 10164



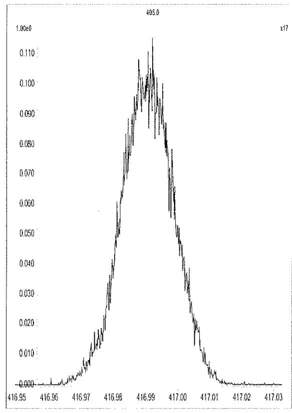
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, October 10, 2014 11:59:27 Central Daylight Time

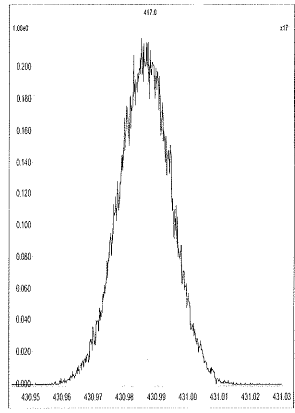
M 404.9760 R 10823



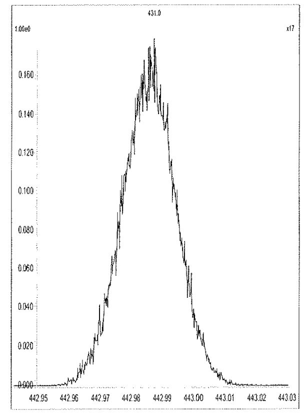
M 416.9760 R 11110



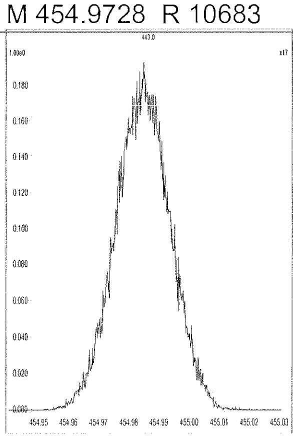
M 430.9728 R 10820



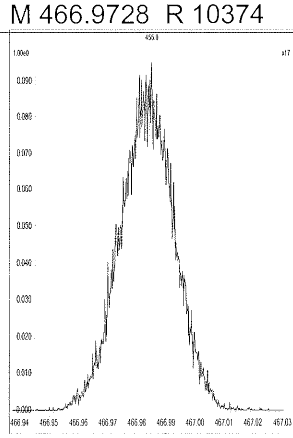
M 442.9728 R 10593



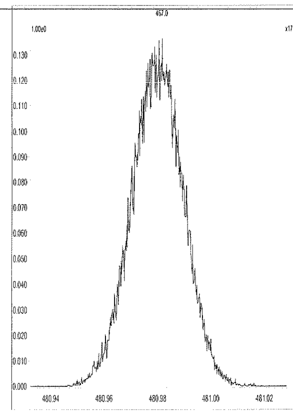
M 454.9728 R 10683



M 466.9728 R 10374



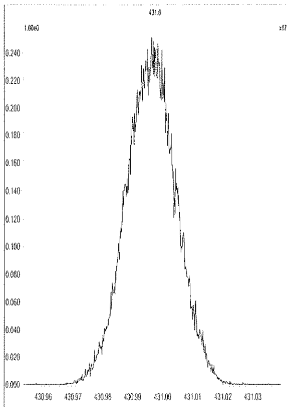
M 480.9696 R 10684



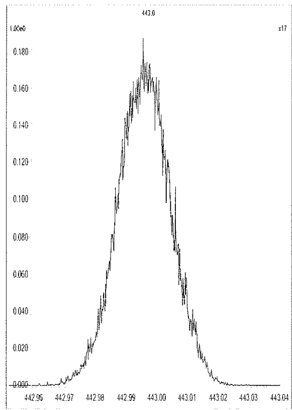
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, October 10, 2014 12:00:11 Central Daylight Time

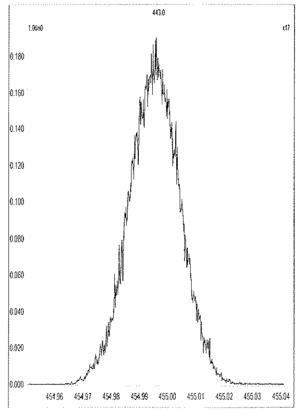
M 430.9728 R 10967



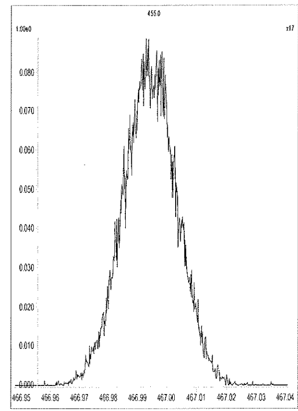
M 442.9728 R 10639



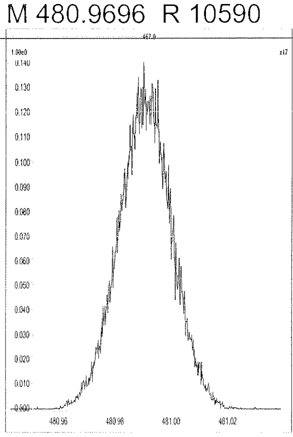
M 454.9728 R 10548



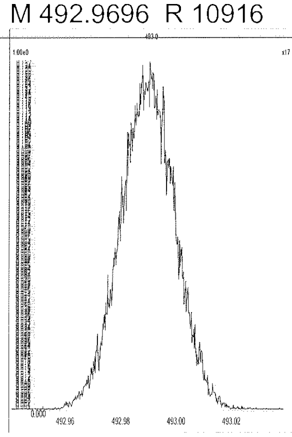
M 466.9728 R 10461



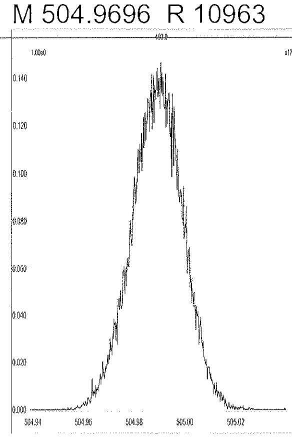
M 480.9696 R 10590



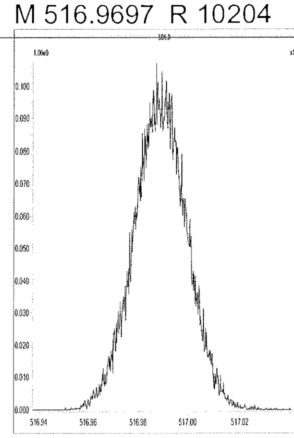
M 492.9696 R 10916



M 504.9696 R 10963



M 516.9697 R 10204

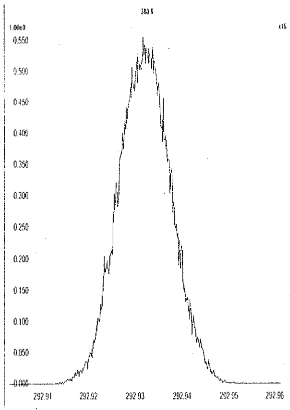


Experiment Calibration Report **MassLynx 4.1**

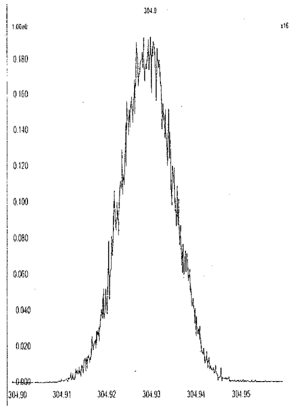
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:04:58 Central Daylight Time

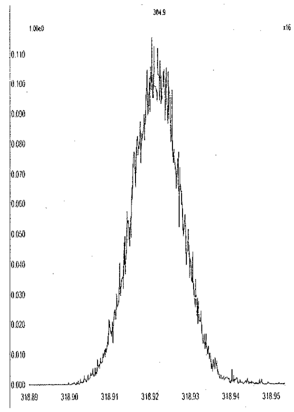
M 292.9824 R 11472



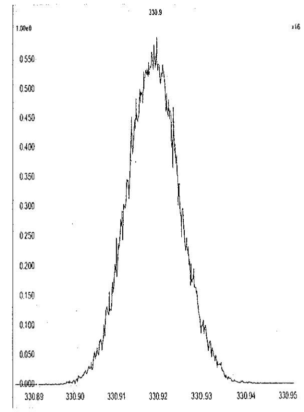
M 304.9824 R 11360



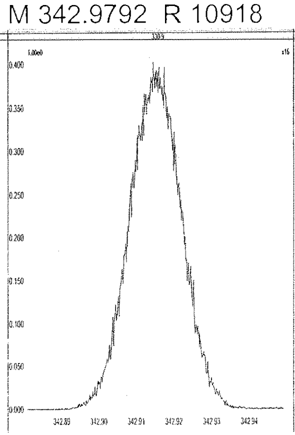
M 318.9792 R 11205



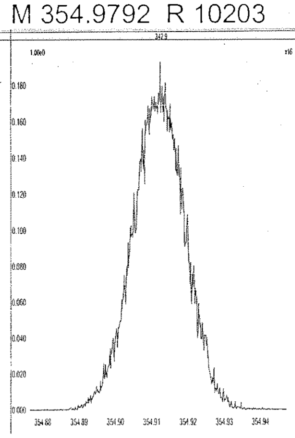
M 330.9792 R 10963



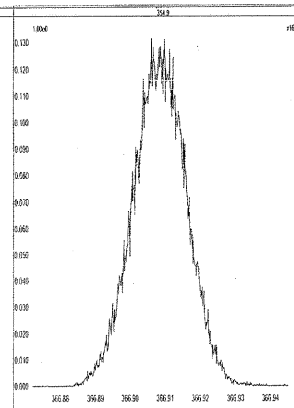
M 342.9792 R 10918



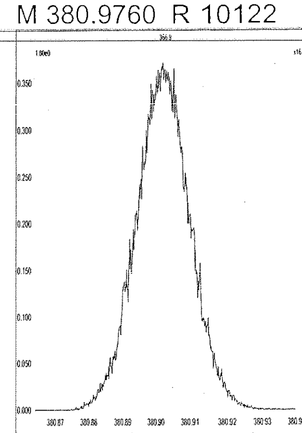
M 354.9792 R 10203



M 366.9792 R 10042



M 380.9760 R 10122

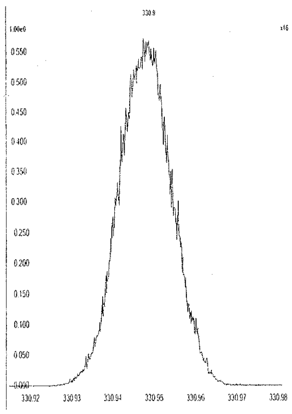


Experiment Calibration Report **MassLynx 4.1**

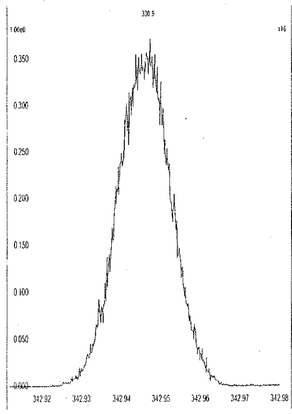
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:06:19 Central Daylight Time

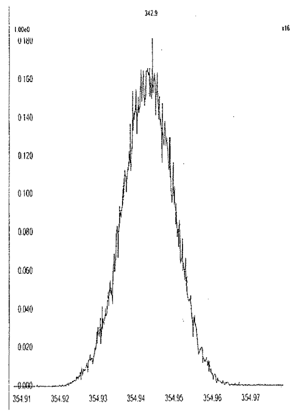
M 330.9792 R 11012



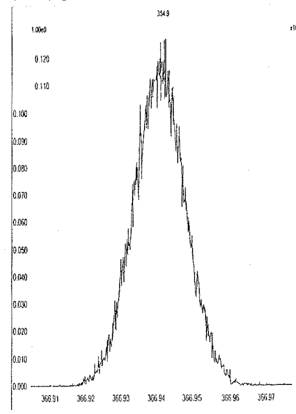
M 342.9792 R 10820



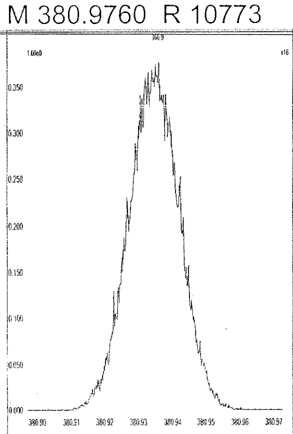
M 354.9792 R 11161



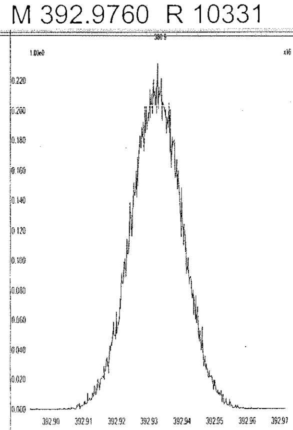
M 366.9792 R 10728



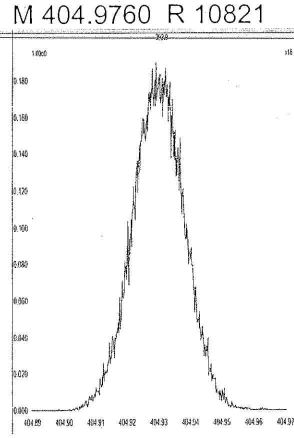
M 380.9760 R 10773



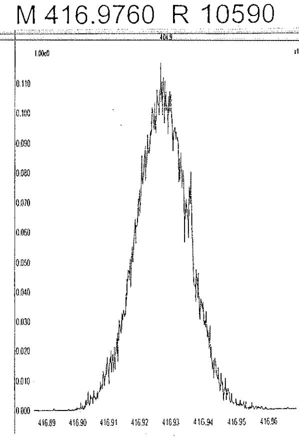
M 392.9760 R 10331



M 404.9760 R 10821



M 416.9760 R 10590

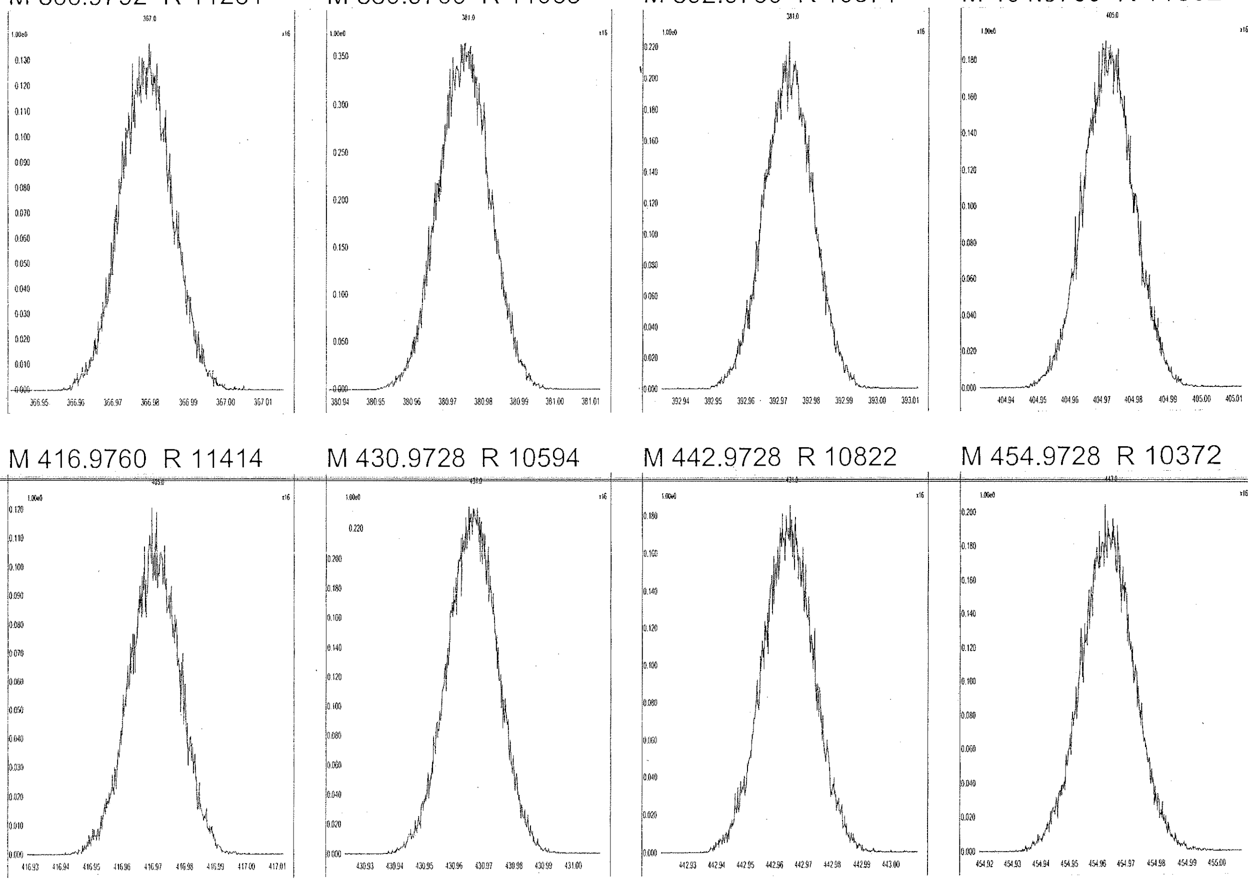


File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:08:40 Central Daylight Time

M 366.9792 R 11261 | M 380.9760 R 11065 | M 392.9760 R 10871 | M 404.9760 R 11062

M 416.9760 R 11414 | M 430.9728 R 10594 | M 442.9728 R 10822 | M 454.9728 R 10372

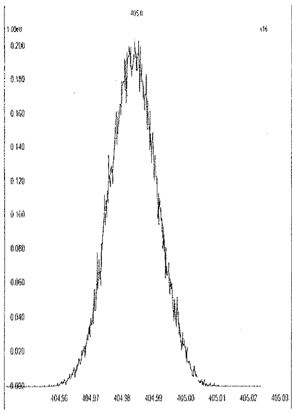


Experiment Calibration Report **MassLynx 4.1**

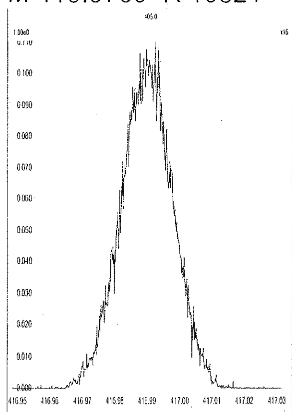
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:10:17 Central Daylight Time

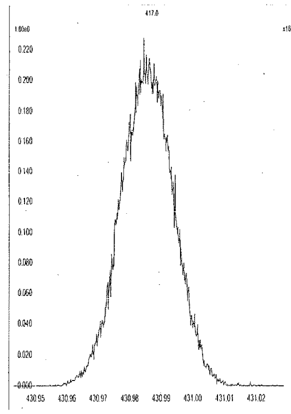
M 404.9760 R 11161



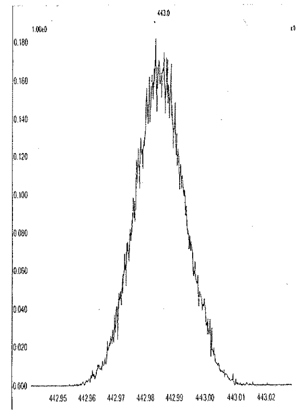
M 416.9760 R 10821



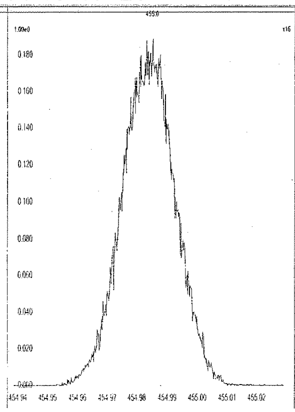
M 430.9728 R 11011



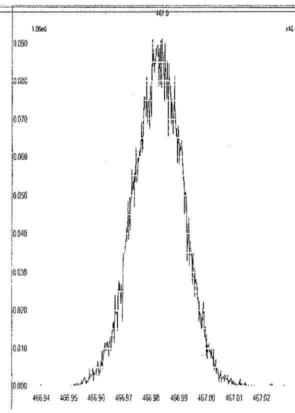
M 442.9728 R 10593



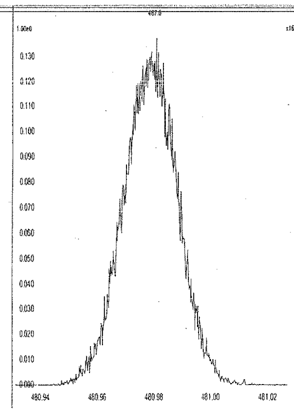
M 454.9728 R 11110



M 466.9728 R 11313



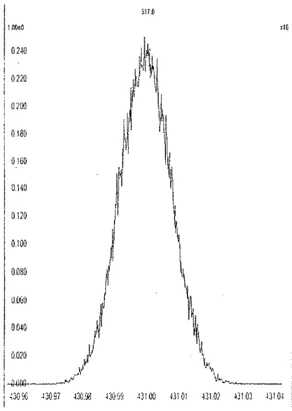
M 480.9696 R 10917



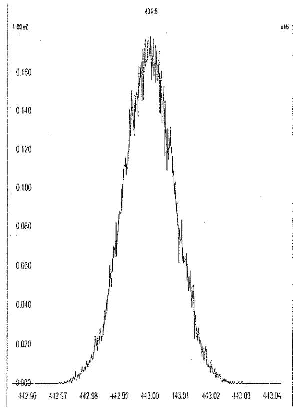
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:11:06 Central Daylight Time

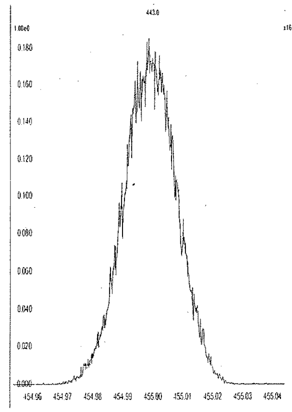
M 430.9728 R 10963



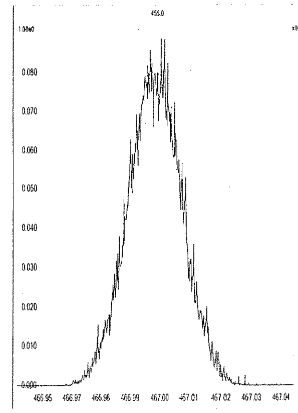
M 442.9728 R 10914



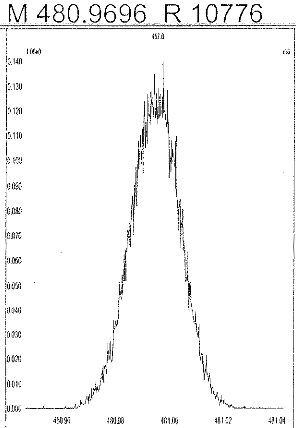
M 454.9728 R 10916



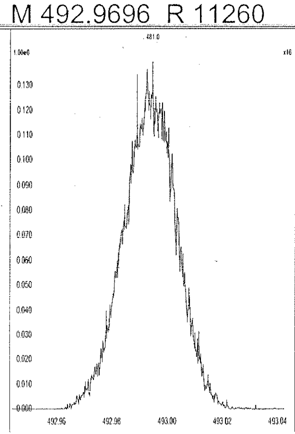
M 466.9728 R 11063



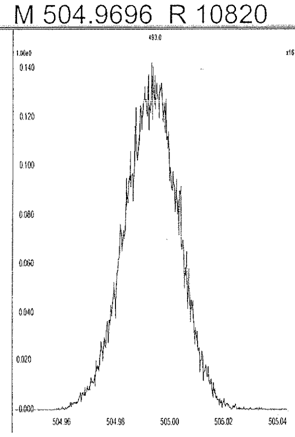
M 480.9696 R 10776



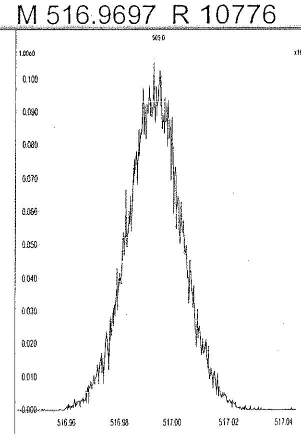
M 492.9696 R 11260



M 504.9696 R 10820



M 516.9697 R 10776



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

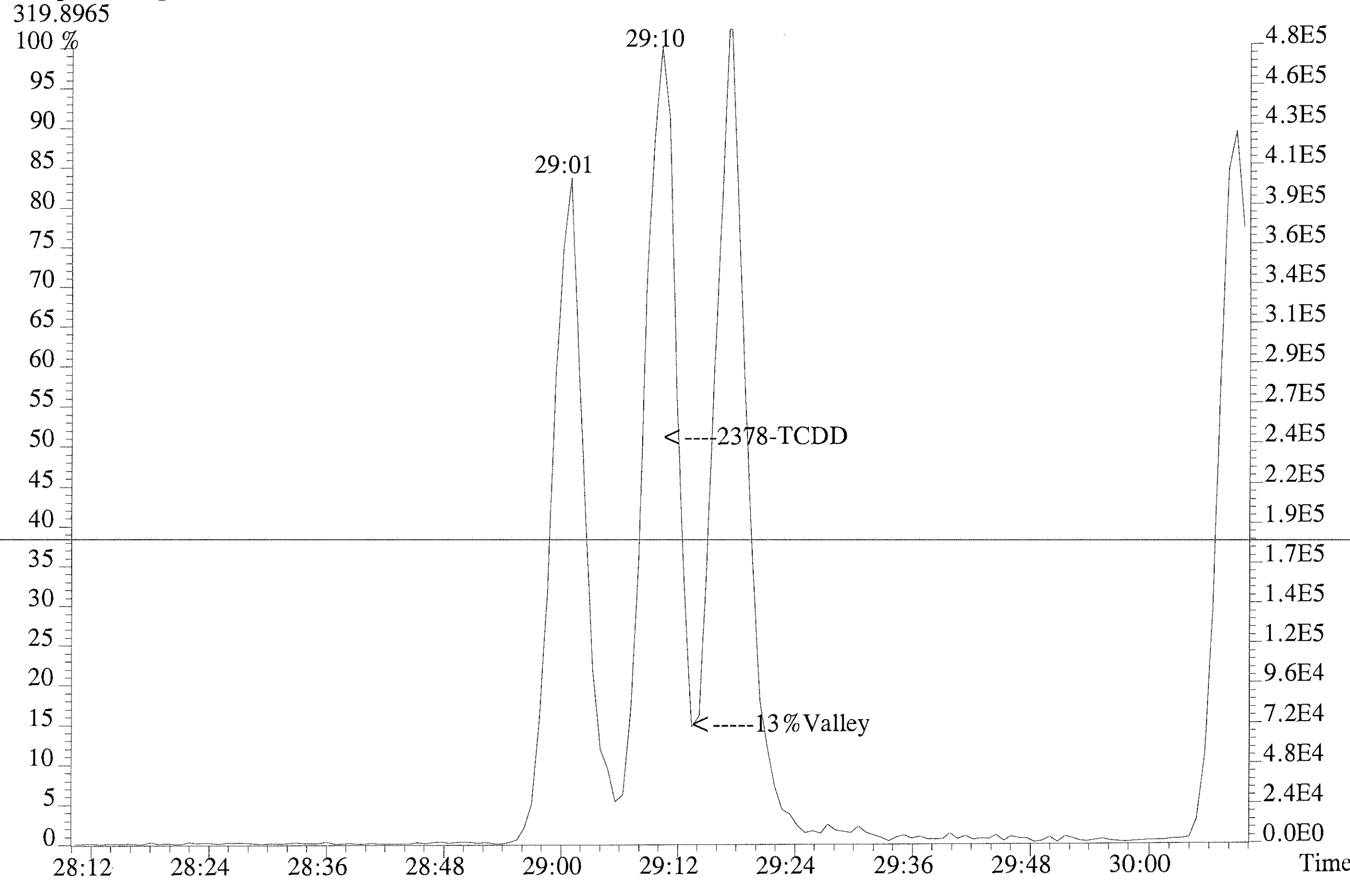
WDM

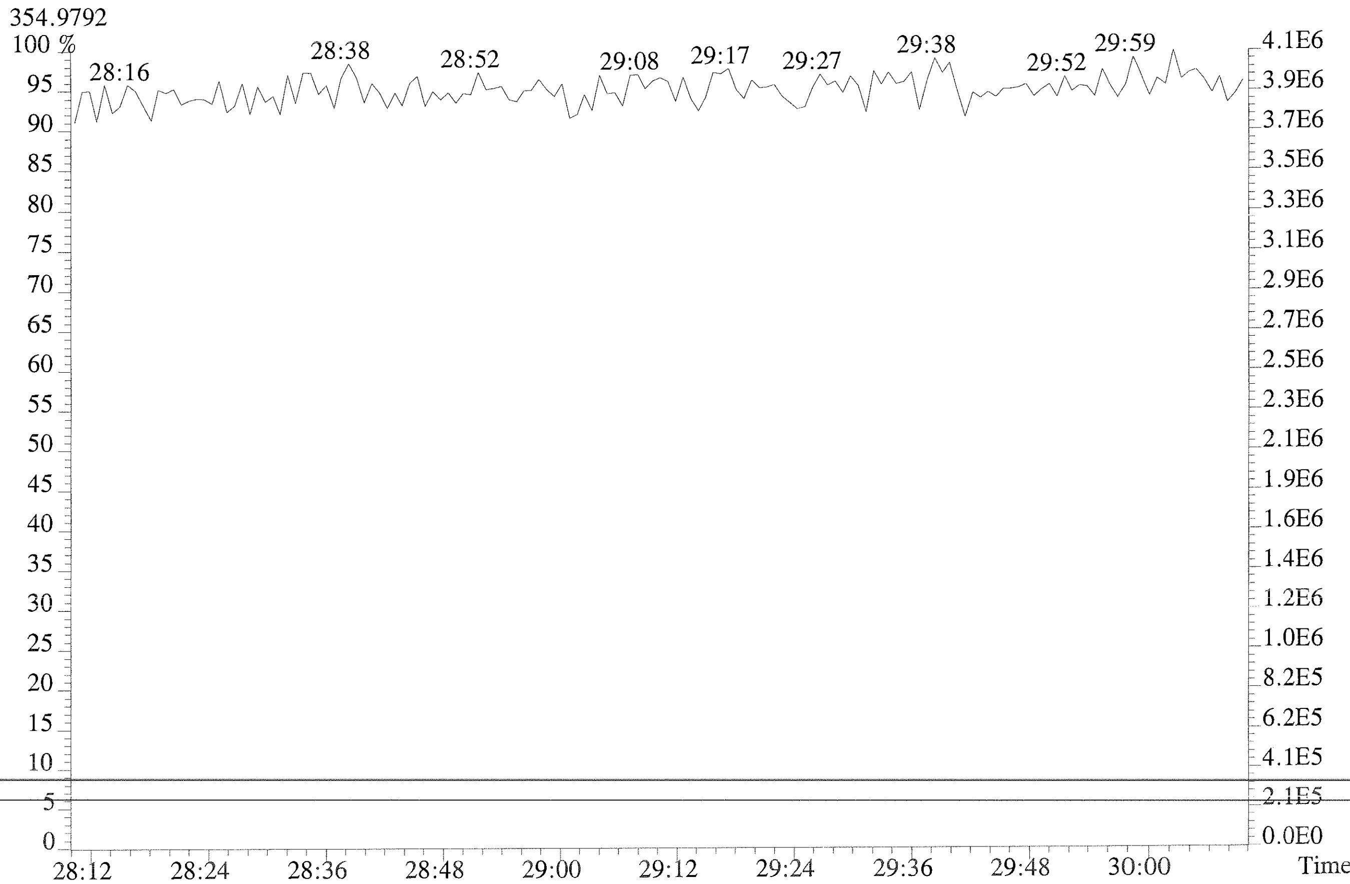
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P174001
Date Analyzed: 10-OCT-2014
Time Analyzed: 06:12:30

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:06	30:18
TCDD	25:59	30:09
PeCDF	30:14	34:25
PeCDD	31:44	34:09
HxCDF	35:03	37:31
HxCDD	35:32	37:06
HpCDF	38:42	40:07
HpCDD	38:56	39:37

% Valley 2378-TCDD: 13 %

File:P174001 #1-788 Acq:10-OCT-2014 06:12:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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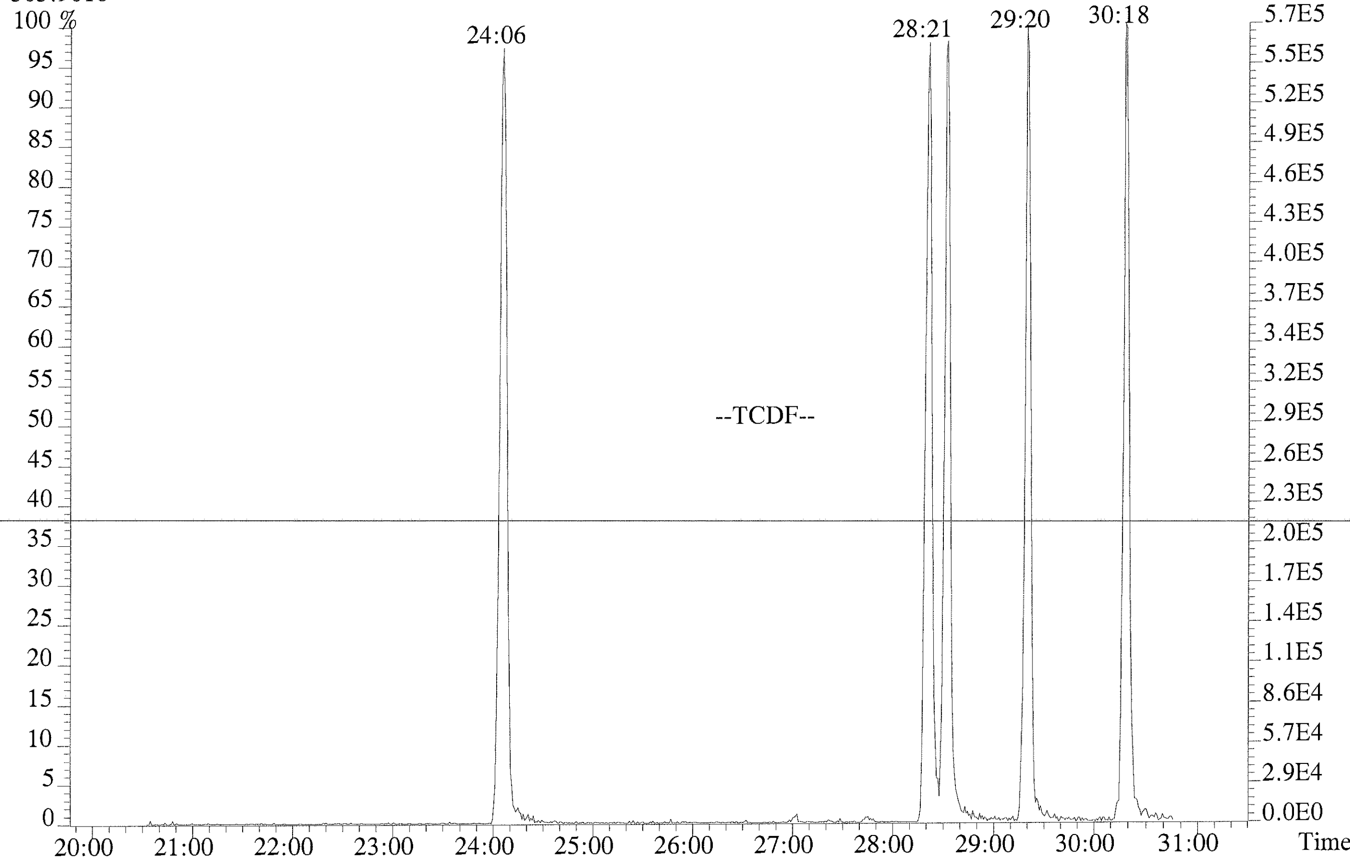
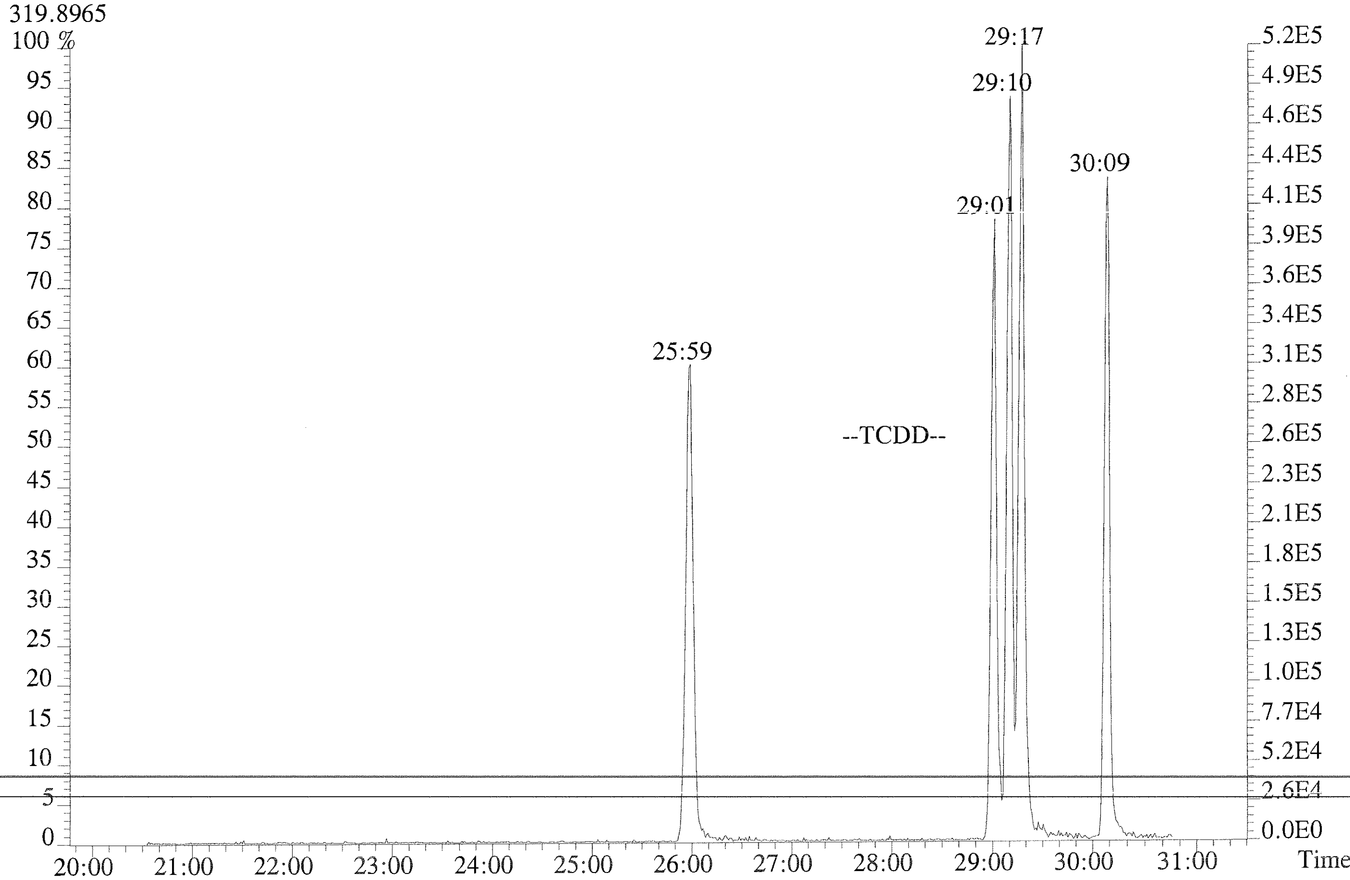
Sample#1 Exp:WINDOW DEFINE

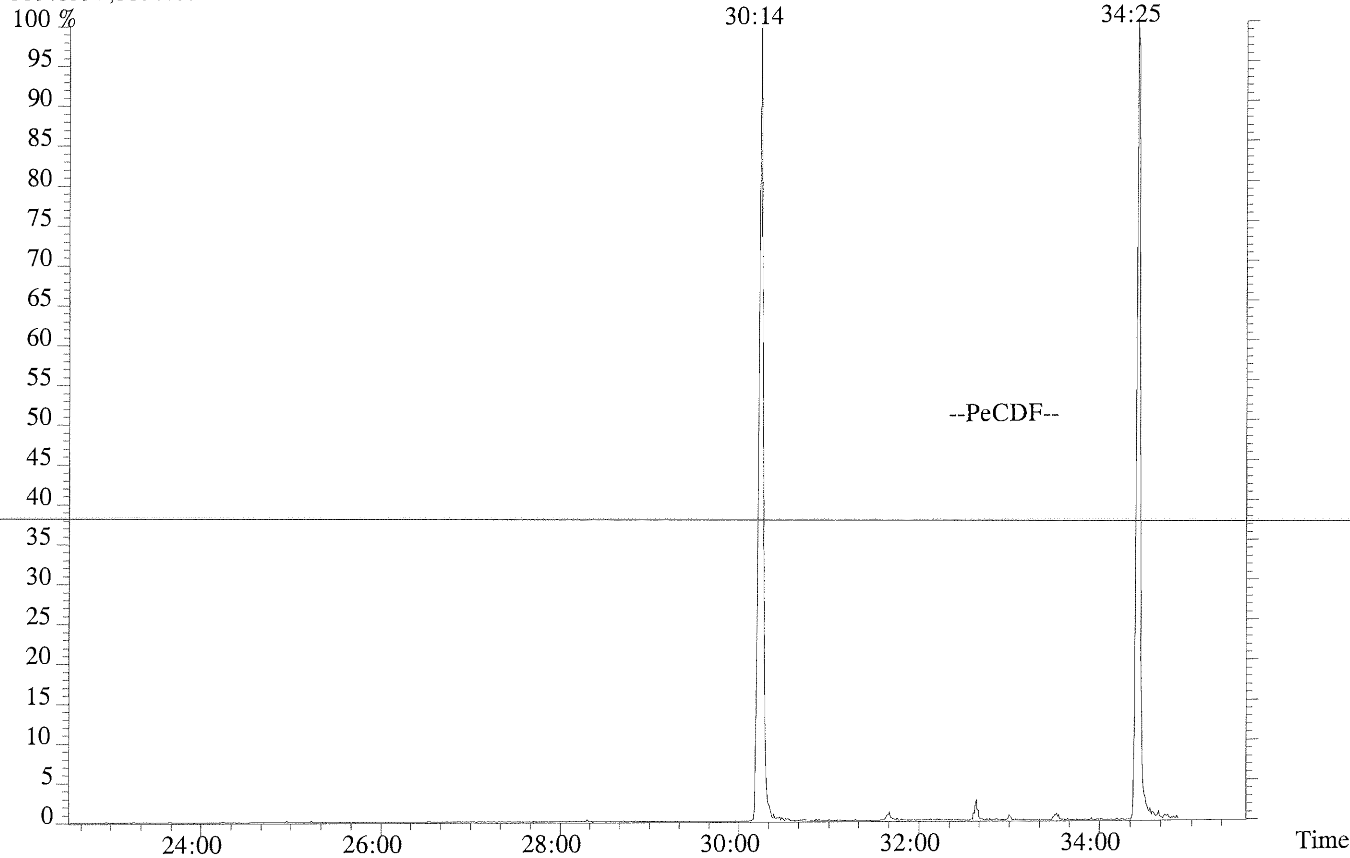
303.9016



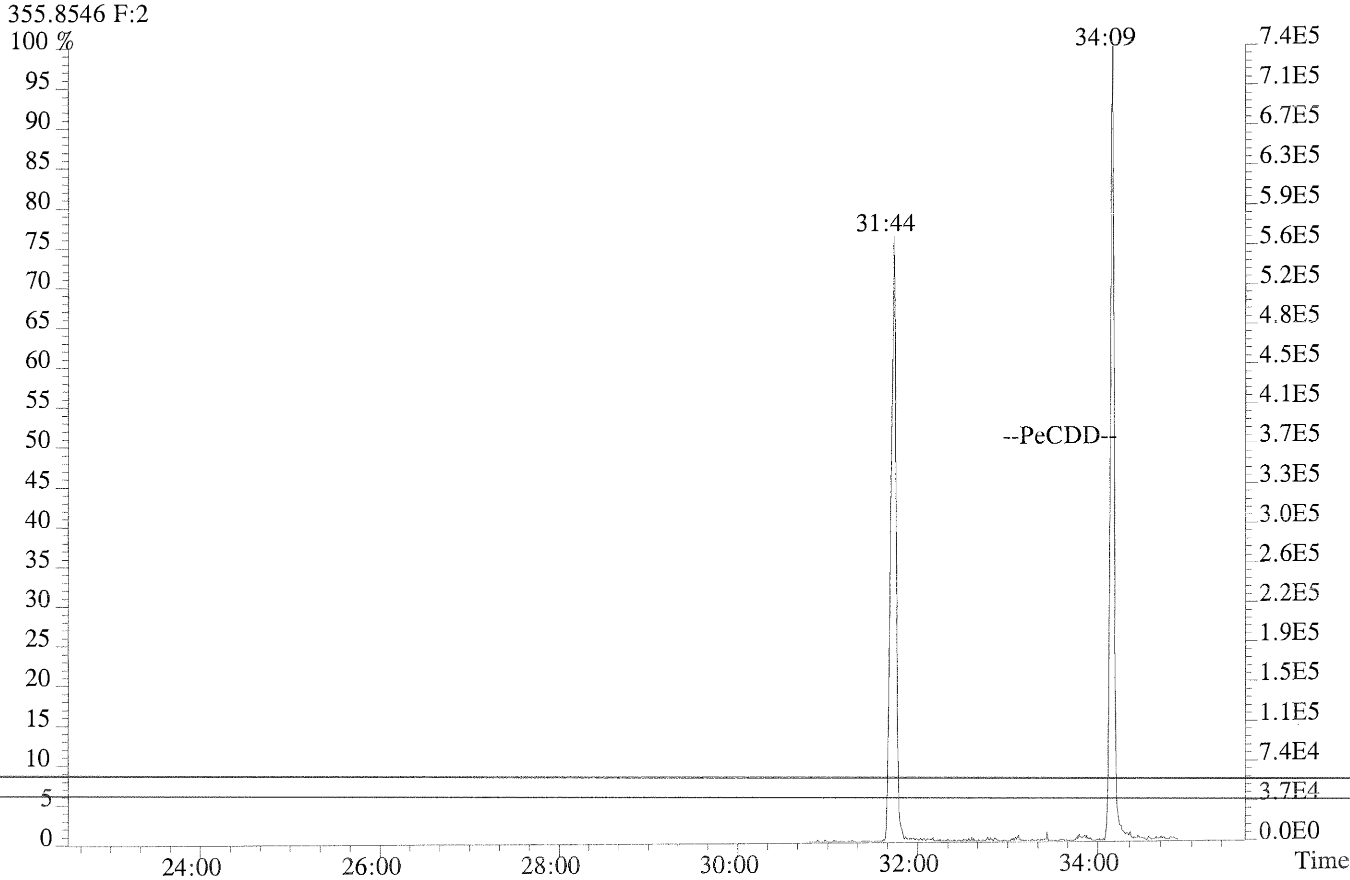
319.8965



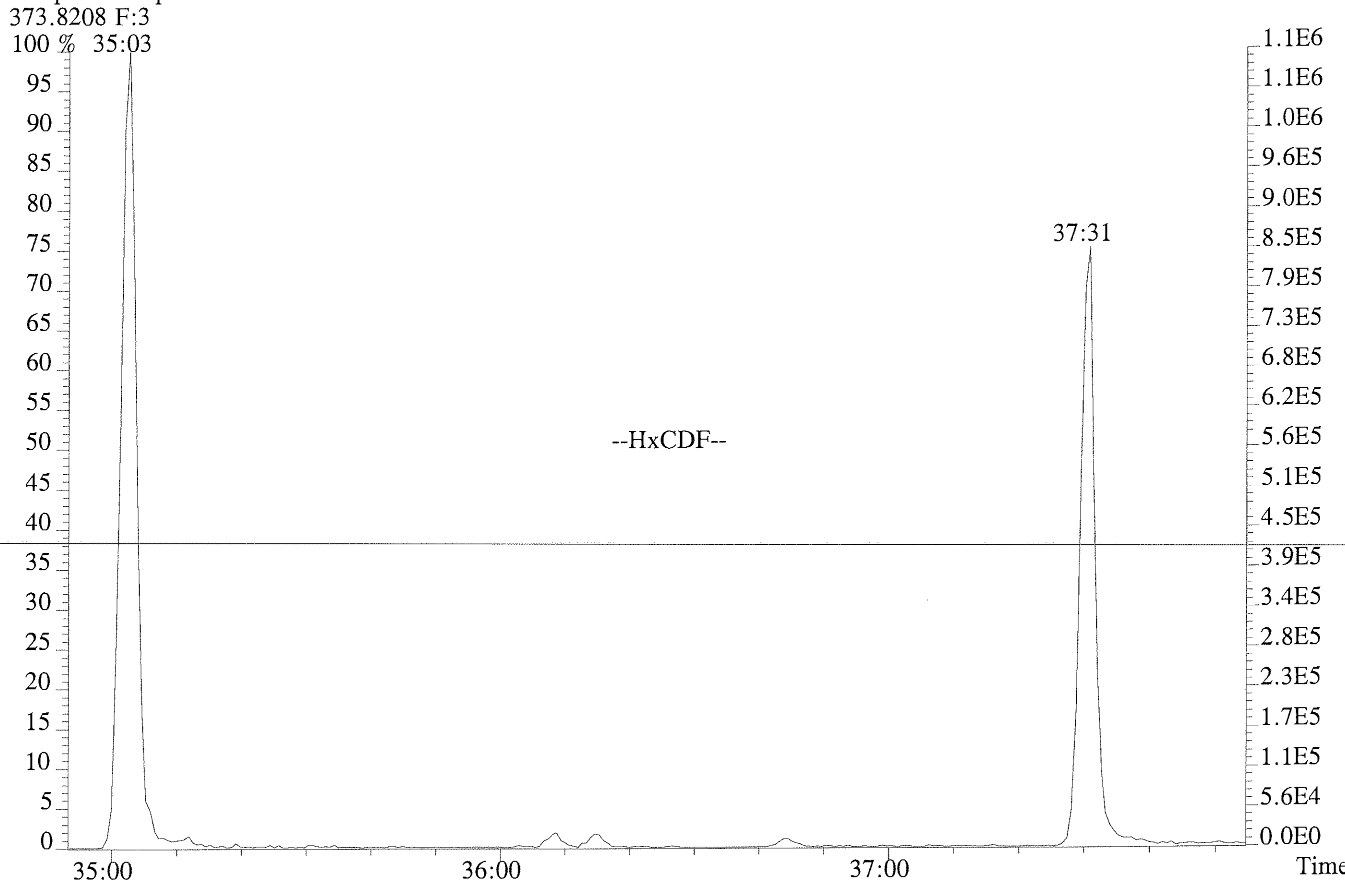
File:P174001 #1-788 Acq:10-OCT-2014 06:12:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

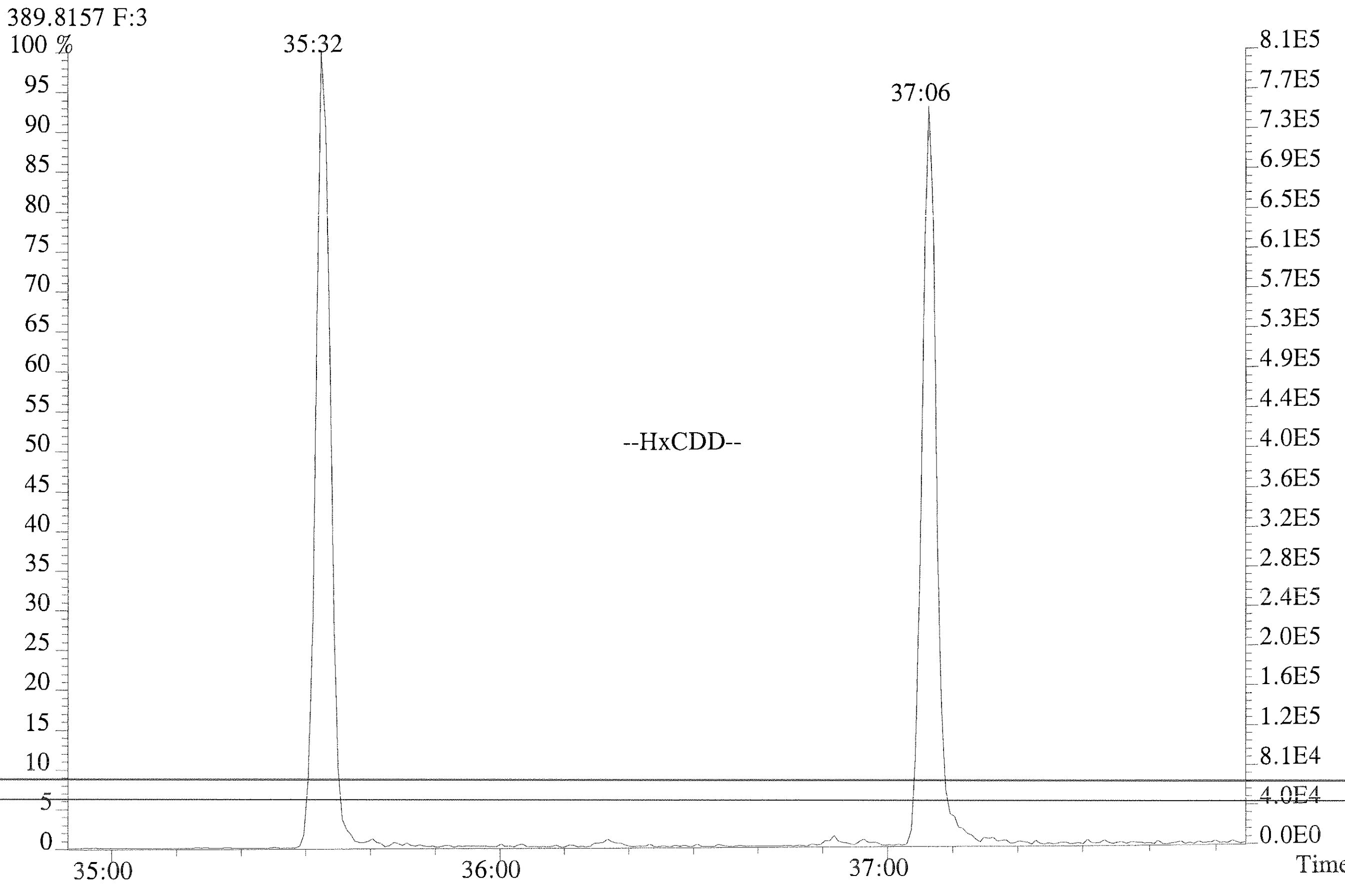


355.8546 F:2

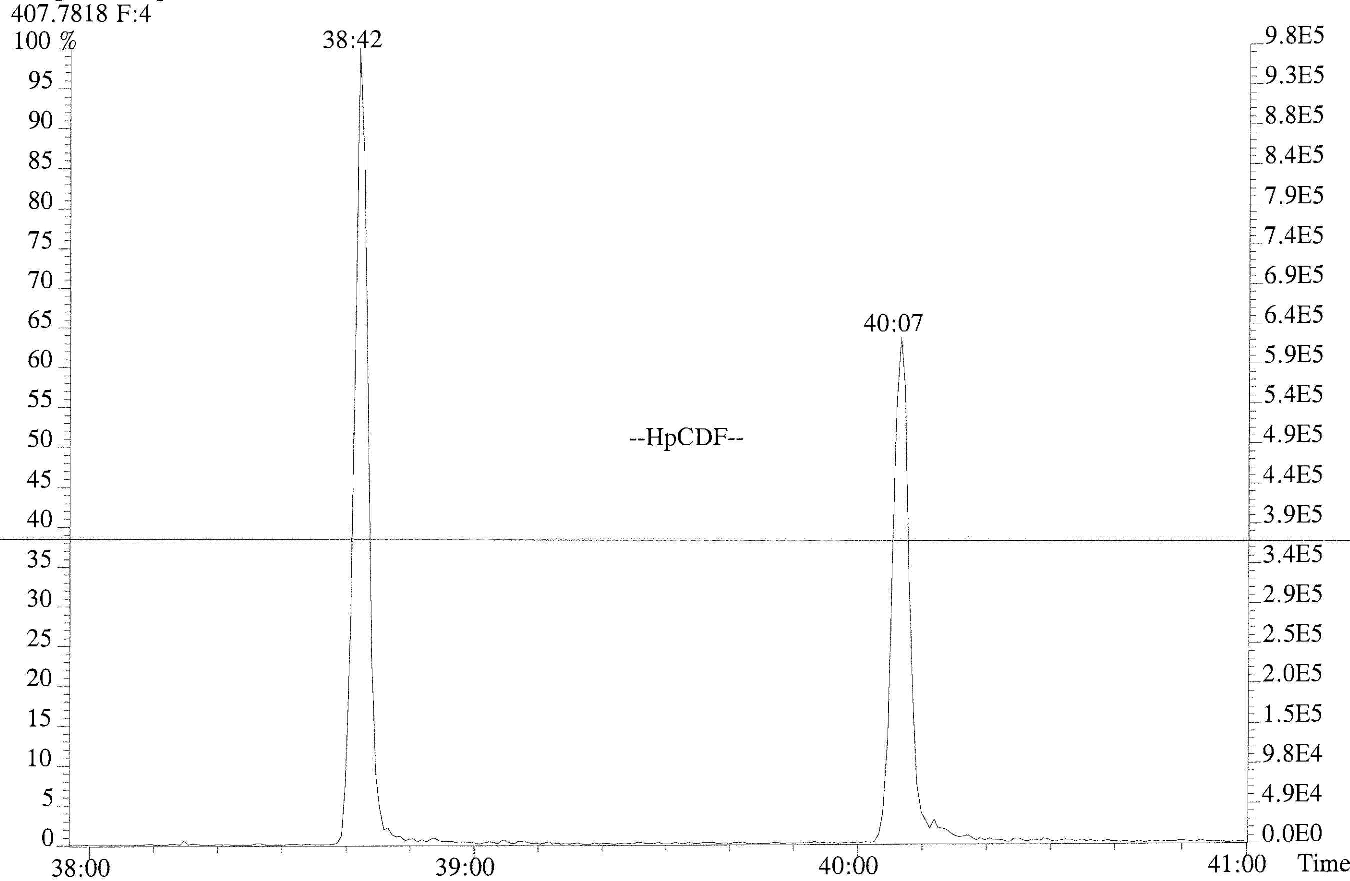


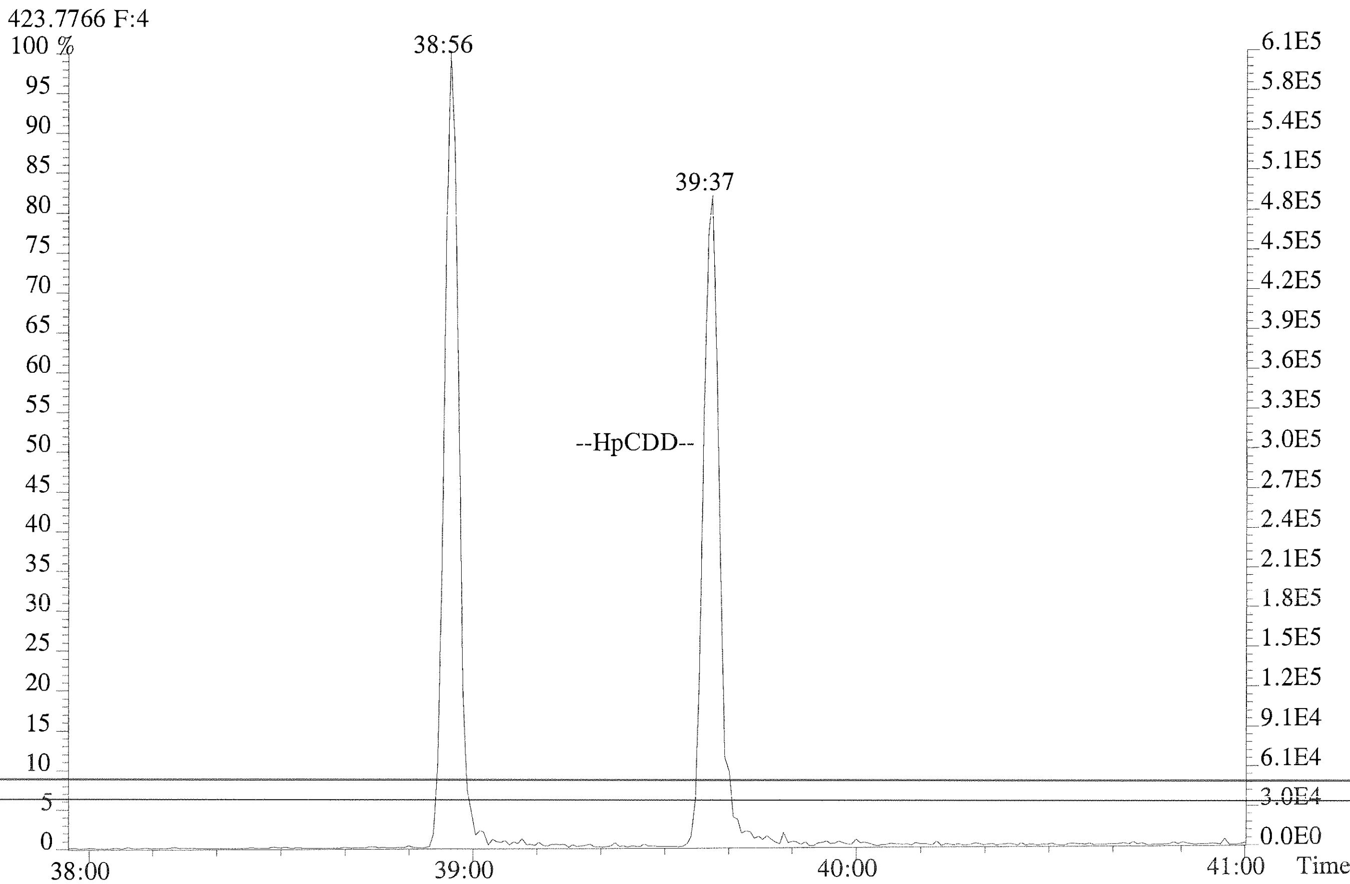
File:P174001 #1-275 Acq:10-OCT-2014 06:12:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P174001 #1-278 Acq:10-OCT-2014 06:12:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P174000 Analysis Date: 10-OCT-14 Time: 05:24:23

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.1	7.8 - 12.9	-9.2
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	52	39 - 64	3.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	49	41 - 61	-3.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	0.6
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-2.4
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	54	41 - 60	7.6
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	53	41 - 61	5.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	55	45 - 56	9.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	53	44 - 57	6.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	54	45 - 56	8.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	54	44 - 57	7.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	55	45 - 55	9.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	54	43 - 58	7.2
OCDF	M+2/M+4	0.91	0.76-1.02	105	63 - 159	4.8

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P174000 | Analysis Date: 10-OCT-14 Time: 05:24:23

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	93	82 - 121	-7.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	74	62 - 160	-25.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	108	85 - 117	8.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	96	85 - 118	-3.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	102	72 - 138	1.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	178	96 - 415	-11.2
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	92	71 - 140	-7.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	73	76 - 130	-27.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	75	77 - 130	-25.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	107	76 - 131	7.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	106	70 - 143	6.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-0.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	73 - 137	6.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.9	7.8 - 12.7	-11.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #7 Filename P174000 Samp: 1 Inj: 1 Acquired: 10-OCT-14 05:24:23
Processed: 10-OCT-14 12:52:06 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:32	3.778e+03	4.950e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:37	3.206e+04	1.986e+04	1.61	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:31	3.002e+04	1.861e+04	1.61	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:08	2.822e+04	2.245e+04	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:15	3.003e+04	2.353e+04	1.28	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:44	2.719e+04	2.183e+04	1.25	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:29	2.341e+04	1.888e+04	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:43	2.550e+04	2.430e+04	1.05	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	1.997e+04	1.878e+04	1.06	yes	no	1.324
10	Unk	OCDF	42:37	2.915e+04	3.216e+04	0.91	yes	no	1.307
~~11~~	~~Unk~~	~~2,3,7,8-TCDD~~	~~29:17~~	~~2.807e+03~~	~~3.652e+03~~	~~0.77~~	~~yes~~	~~no~~	~~1.037~~
12	Unk	1,2,3,7,8-PeCDD	33:48	1.929e+04	1.226e+04	1.57	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	36:52	1.749e+04	1.374e+04	1.27	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	36:57	1.713e+04	1.381e+04	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:11	1.787e+04	1.459e+04	1.22	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.536e+04	1.459e+04	1.05	yes	no	1.016
17	Unk	OCDD	42:24	2.281e+04	2.578e+04	0.88	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:31	4.140e+04	5.322e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:37	5.791e+04	3.699e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:30	5.802e+04	3.683e+04	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:07	2.555e+04	4.913e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:14	2.932e+04	5.576e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:44	2.703e+04	5.200e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:28	2.314e+04	4.471e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:42	2.012e+04	4.454e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	1.684e+04	3.774e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:17	2.997e+04	3.861e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:46	4.201e+04	2.708e+04	1.55	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:51	3.450e+04	2.729e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	3.396e+04	2.661e+04	1.28	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	3.000e+04	2.827e+04	1.06	yes	no	0.862
32	IS	13C-OCDD	42:24	4.221e+04	4.729e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:43	3.133e+04	3.921e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	3.708e+04	2.943e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:17	7.024e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #7 Filename P174000 Samp: 1 Inj: 1 Acquired: 10-OCT-14 05:24:23
Processed: 10-OCT-14 12:52:061 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.75e+05	7.20e+01	9.4e+03	8.74e+05	6.20e+02	1.4e+03
2	1,2,3,7,8-PeCDF	6.09e+06	1.08e+02	5.6e+04	3.79e+06	2.36e+02	1.6e+04
3	2,3,4,7,8-PeCDF	6.09e+06	1.08e+02	5.6e+04	3.79e+06	2.36e+02	1.6e+04
4	1,2,3,4,7,8-HxCDF	6.26e+06	5.80e+02	1.1e+04	5.03e+06	1.64e+02	3.1e+04
5	1,2,3,6,7,8-HxCDF	6.61e+06	5.80e+02	1.1e+04	5.21e+06	1.64e+02	3.2e+04
6	2,3,4,6,7,8-HxCDF	6.06e+06	5.80e+02	1.0e+04	4.79e+06	1.64e+02	2.9e+04
7	1,2,3,7,8,9-HxCDF	5.15e+06	5.80e+02	8.9e+03	4.06e+06	1.64e+02	2.5e+04
8	1,2,3,4,6,7,8-HpCDF	5.62e+06	3.68e+03	1.5e+03	5.36e+06	5.72e+02	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.18e+06	3.68e+03	1.1e+03	3.90e+06	5.72e+02	6.8e+03
10	OCDF	5.30e+06	1.72e+02	3.1e+04	5.83e+06	3.24e+02	1.8e+04
~~11~~	~~2,3,7,8-TCDD~~	~~5.27e+05~~	~~2.20e+02~~	~~2.4e+03~~	~~6.78e+05~~	~~1.68e+02~~	~~4.0e+03~~
12	1,2,3,7,8-PeCDD	3.94e+06	4.80e+02	8.2e+03	2.45e+06	3.12e+02	7.8e+03
13	1,2,3,4,7,8-HxCDD	4.05e+06	2.36e+02	1.7e+04	3.14e+06	3.76e+02	8.3e+03
14	1,2,3,6,7,8-HxCDD	3.80e+06	2.36e+02	1.6e+04	3.03e+06	3.76e+02	8.1e+03
15	1,2,3,7,8,9-HxCDD	4.12e+06	2.36e+02	1.7e+04	3.28e+06	3.76e+02	8.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.30e+06	3.32e+02	9.9e+03	3.08e+06	1.08e+02	2.9e+04
17	OCDD	4.17e+06	6.80e+01	6.1e+04	4.65e+06	3.60e+02	1.3e+04
18	13C-2,3,7,8-TCDF	7.26e+06	9.72e+02	7.5e+03	9.30e+06	5.28e+02	1.8e+04
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.04e+02	1.1e+05	7.17e+06	6.40e+01	1.1e+05
20	13C-2,3,4,7,8-PeCDF	1.17e+07	1.04e+02	1.1e+05	7.42e+06	6.40e+01	1.2e+05
21	13C-1,2,3,4,7,8-HxCDF	5.61e+06	1.05e+03	5.3e+03	1.08e+07	8.36e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.49e+06	1.05e+03	6.2e+03	1.23e+07	8.36e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	6.05e+06	1.05e+03	5.7e+03	1.14e+07	8.36e+02	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.01e+06	1.05e+03	4.8e+03	9.61e+06	8.36e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.51e+06	1.62e+03	2.8e+03	9.81e+06	2.44e+02	4.0e+04
26	13C-1,2,3,4,7,8,9-HpCDF	3.49e+06	1.62e+03	2.2e+03	7.73e+06	2.44e+02	3.2e+04
27	13C-2,3,7,8-TCDD	5.48e+06	2.36e+03	2.3e+03	6.98e+06	9.48e+02	7.4e+03
28	13C-1,2,3,7,8-PeCDD	8.38e+06	3.24e+02	2.6e+04	5.47e+06	3.48e+02	1.6e+04
29	13C-1,2,3,4,7,8-HxCDD	7.94e+06	8.32e+02	9.5e+03	6.25e+06	8.32e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.50e+06	8.32e+02	9.0e+03	5.81e+06	8.32e+02	7.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.42e+06	6.00e+02	1.1e+04	5.93e+06	2.36e+02	2.5e+04
32	13C-OCDD	7.67e+06	2.20e+02	3.5e+04	8.59e+06	4.16e+02	2.1e+04
33	13C-1,2,3,4-TCDD	5.72e+06	2.36e+03	2.4e+03	7.18e+06	9.48e+02	7.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.39e+06	8.32e+02	1.0e+04	6.72e+06	8.32e+02	8.1e+03
35	37Cl-2,3,7,8-TCDD	1.33e+06	6.52e+02	2.0e+03			

ALS ENVIRONMENTAL
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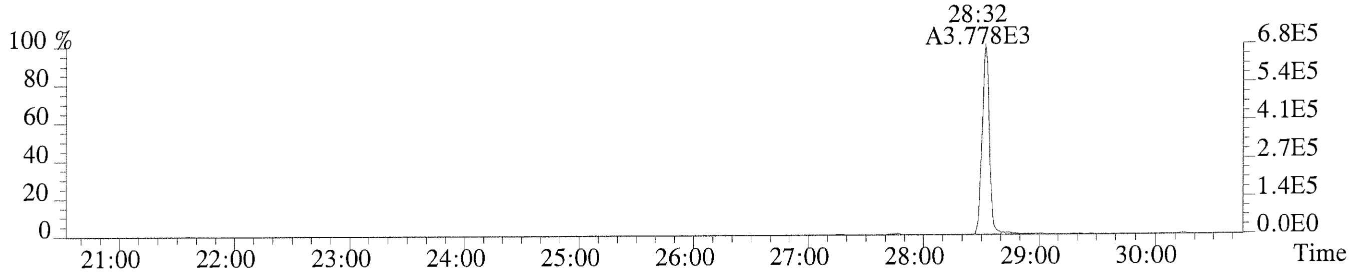
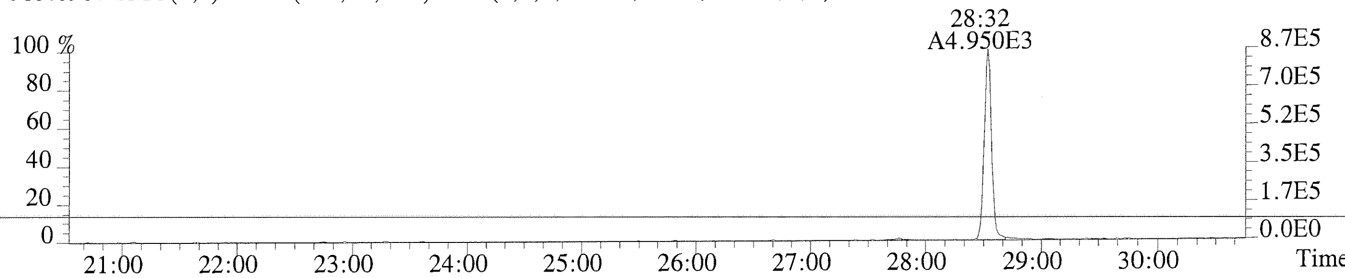
File:P174000 #1-788 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

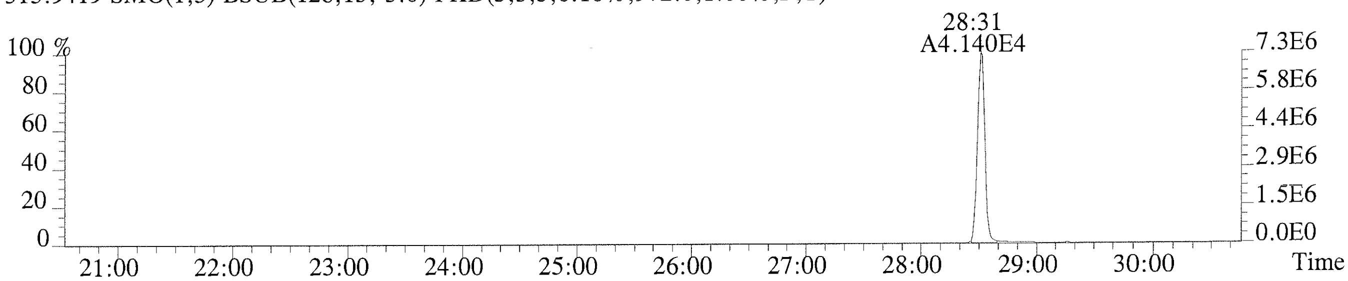
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)



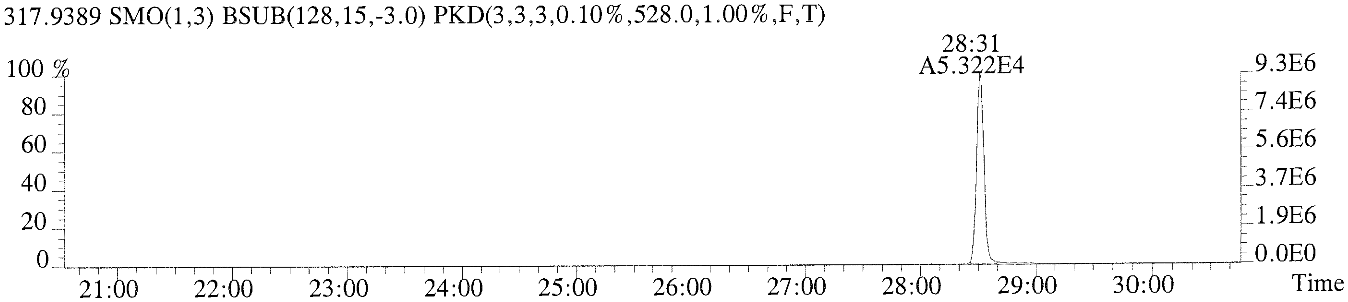
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



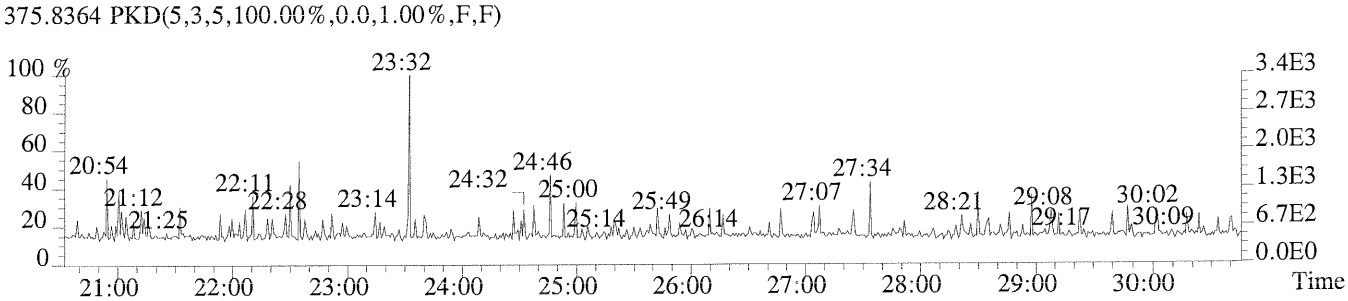
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



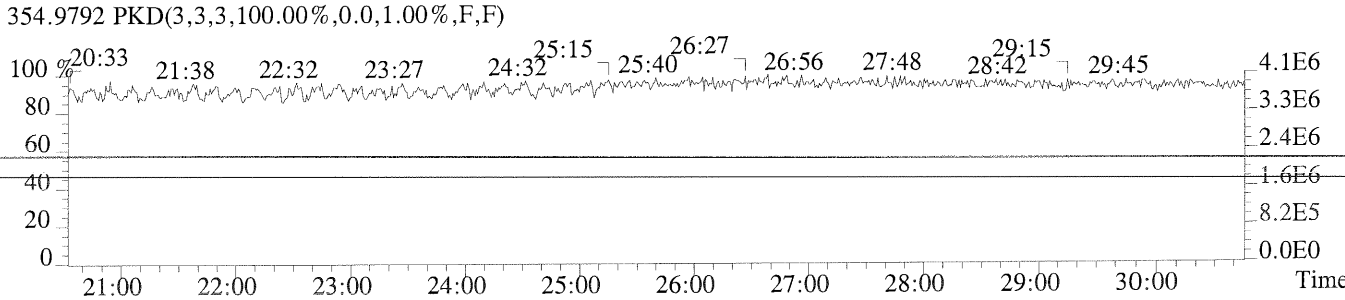
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



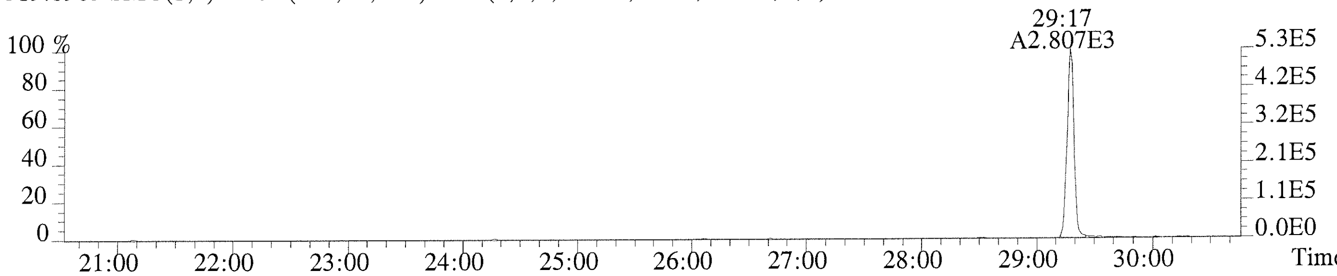
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



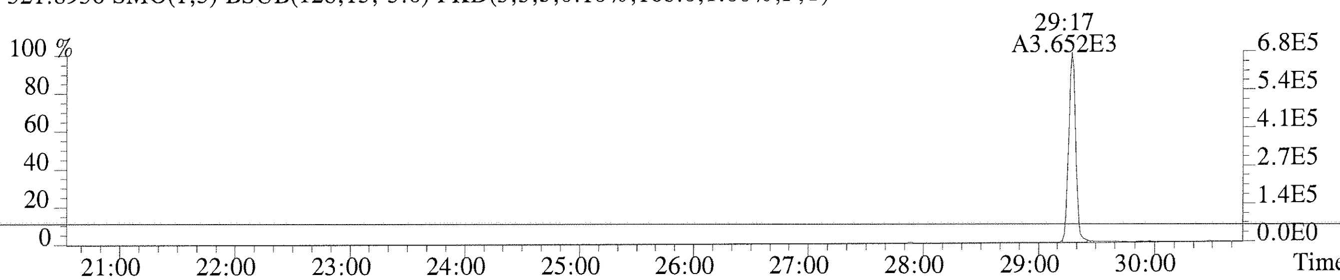
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



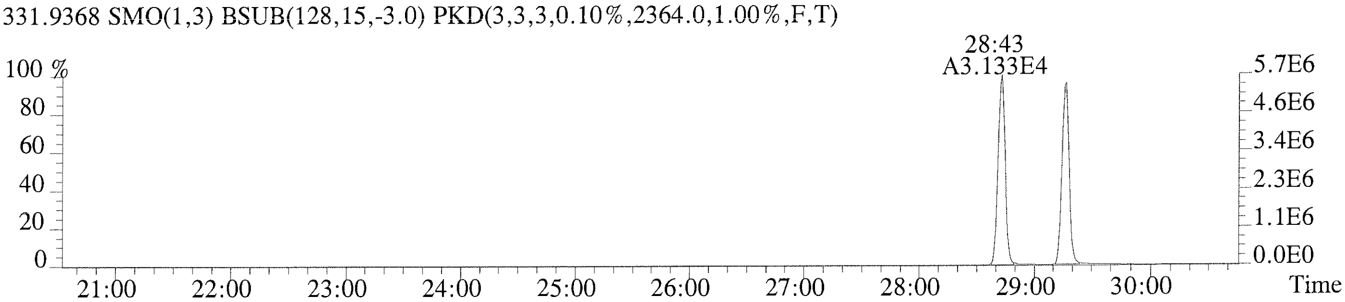
File:P174000 #1-788 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



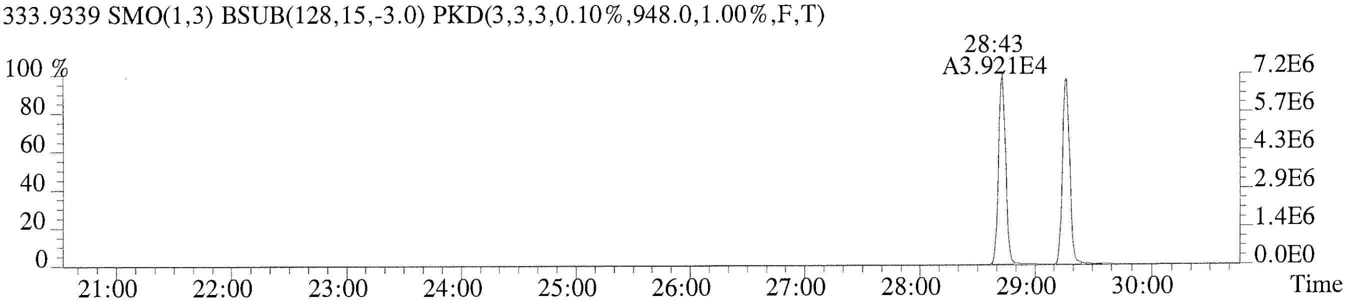
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



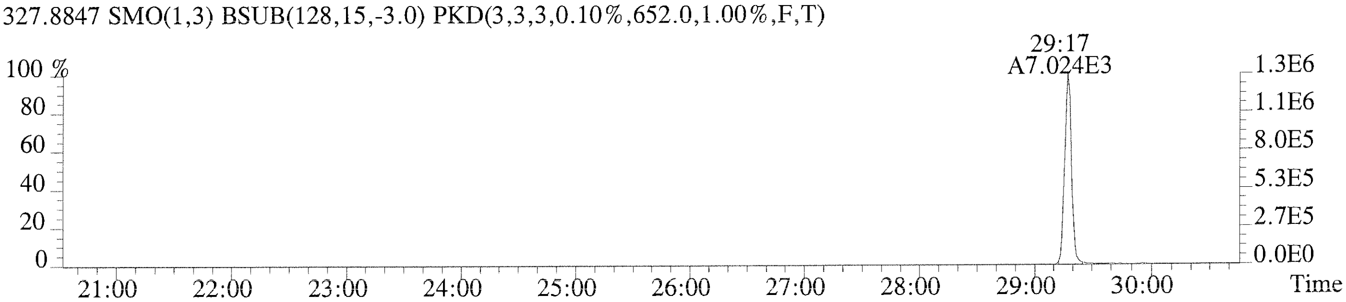
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



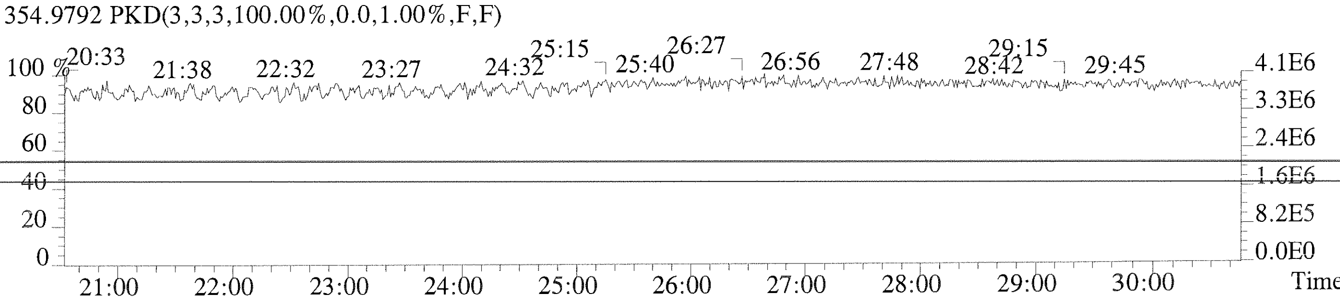
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



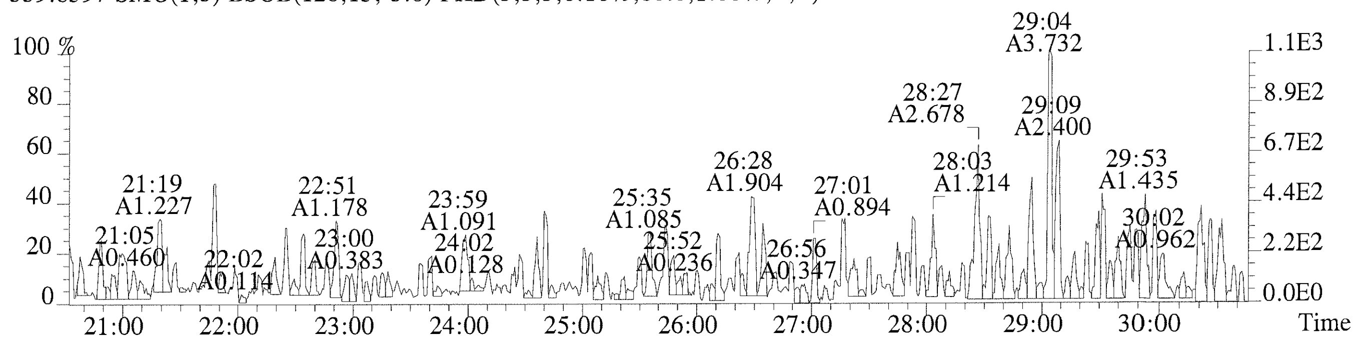
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



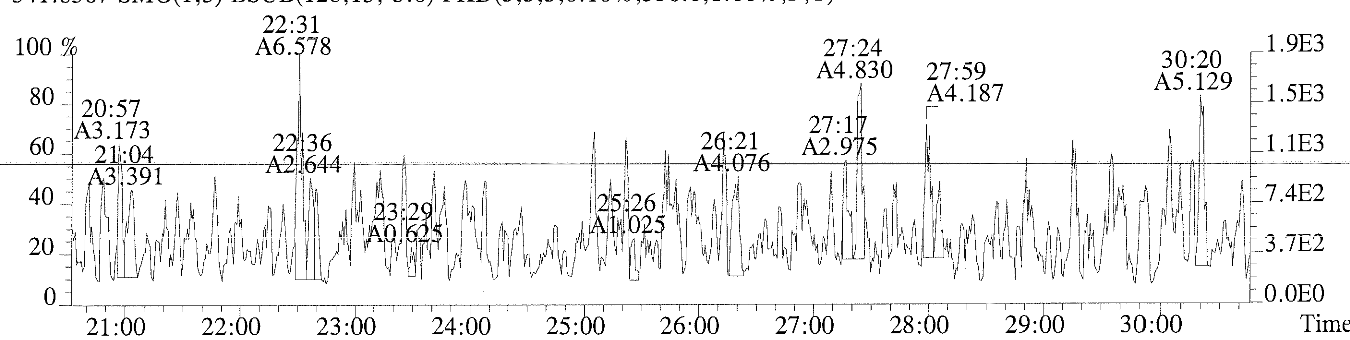
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



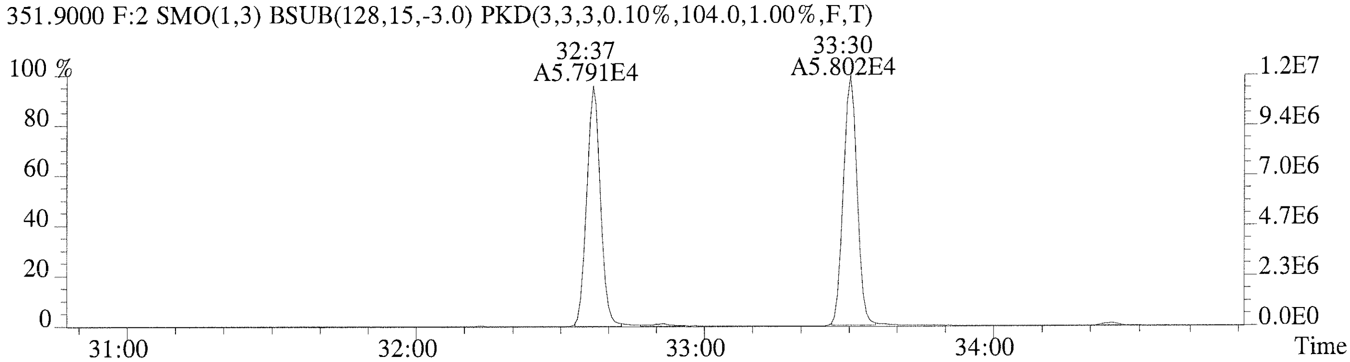
File:P174000 #1-788 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,80.0,1.00%,F,T)



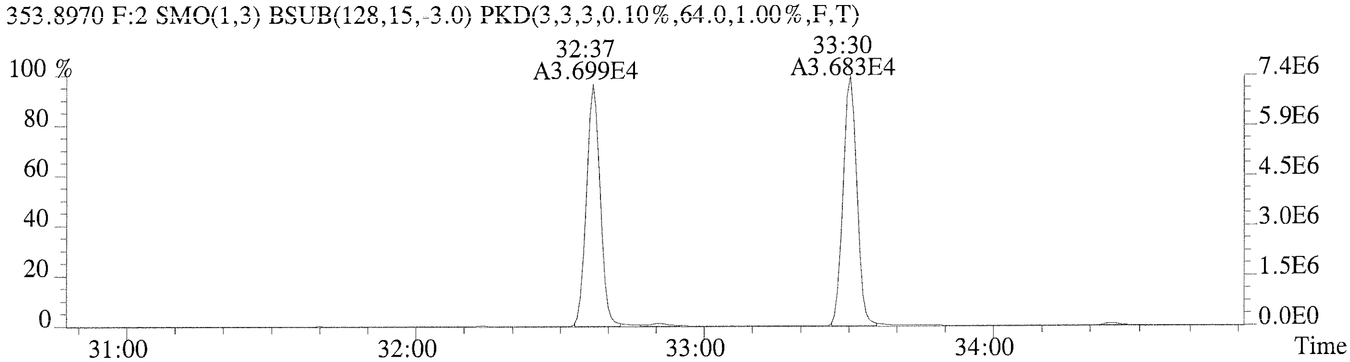
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



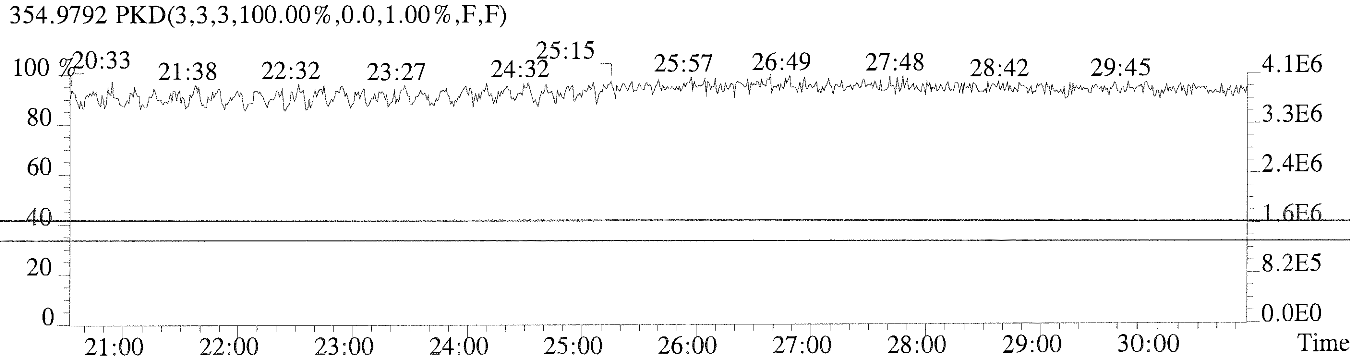
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,104.0,1.00%,F,T)



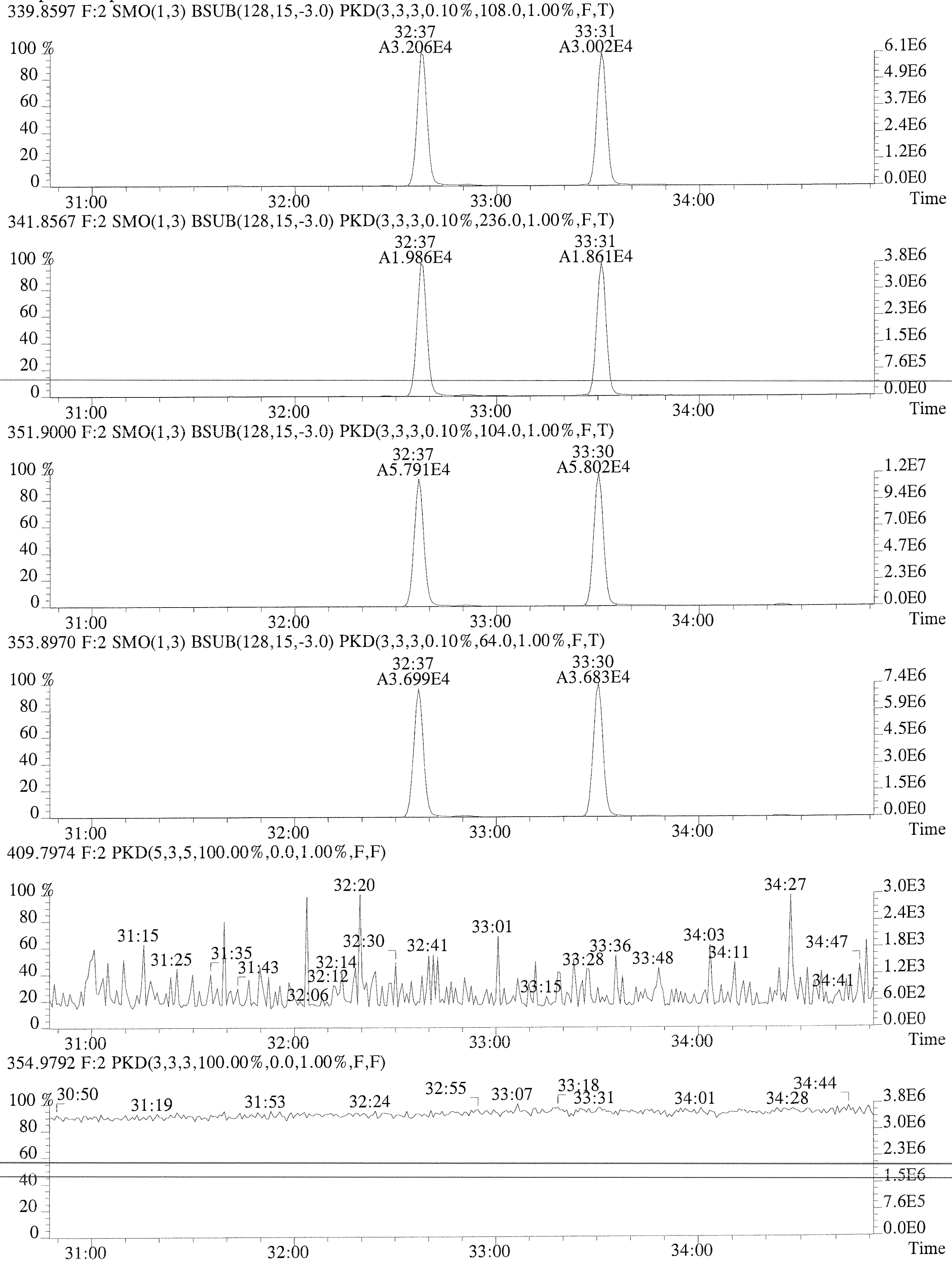
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



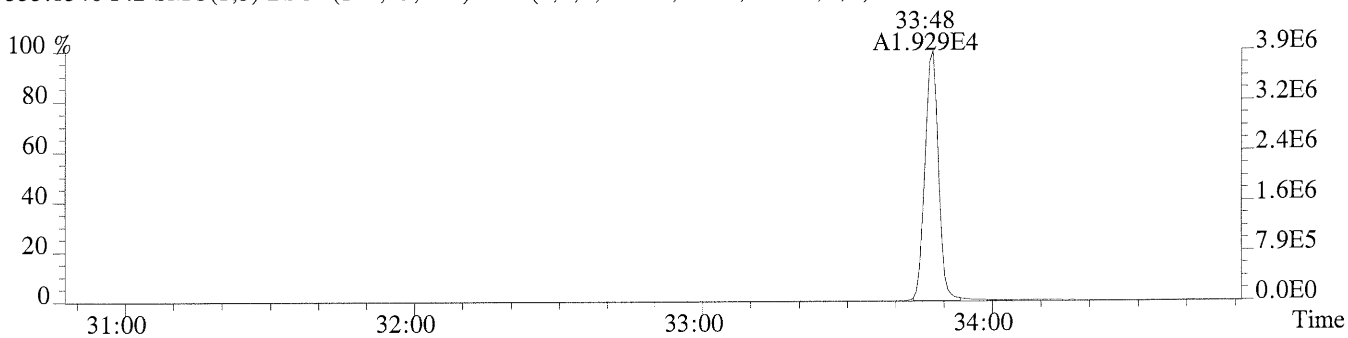
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



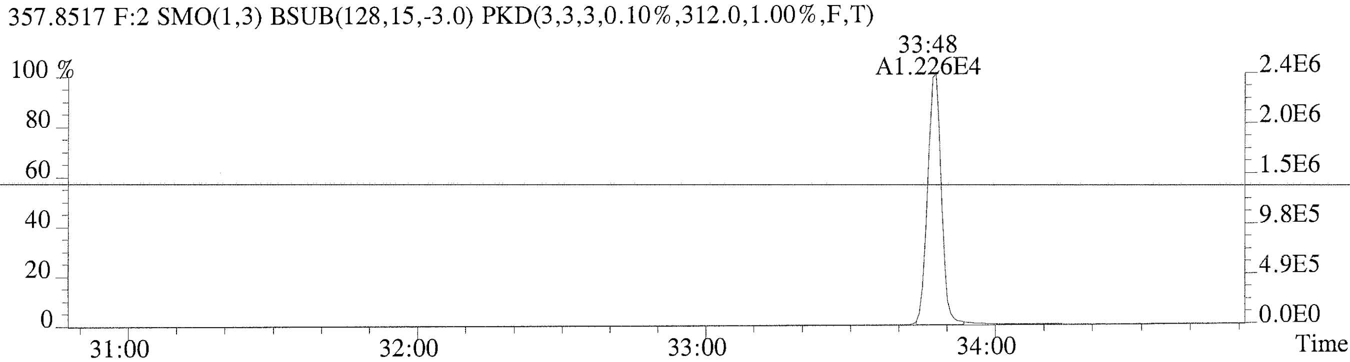
File:P174000 #1-369 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



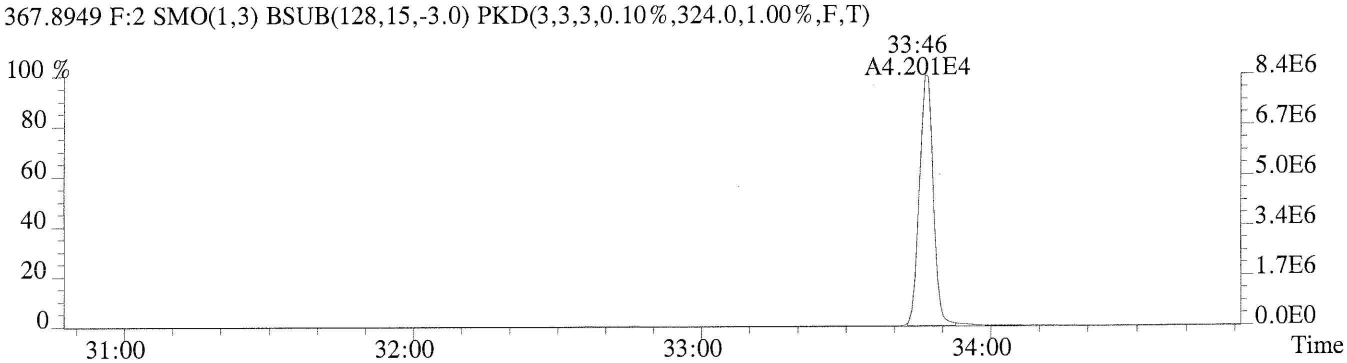
File:P174000 #1-369 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



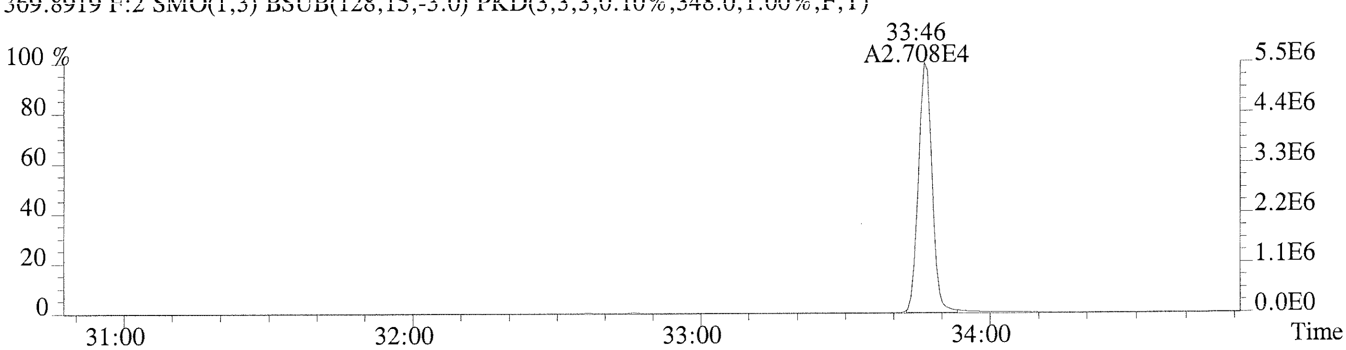
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



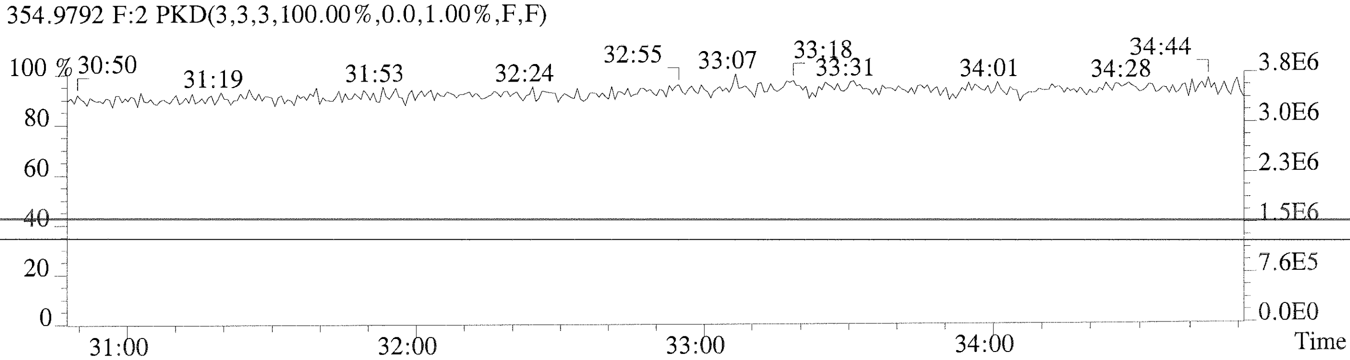
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



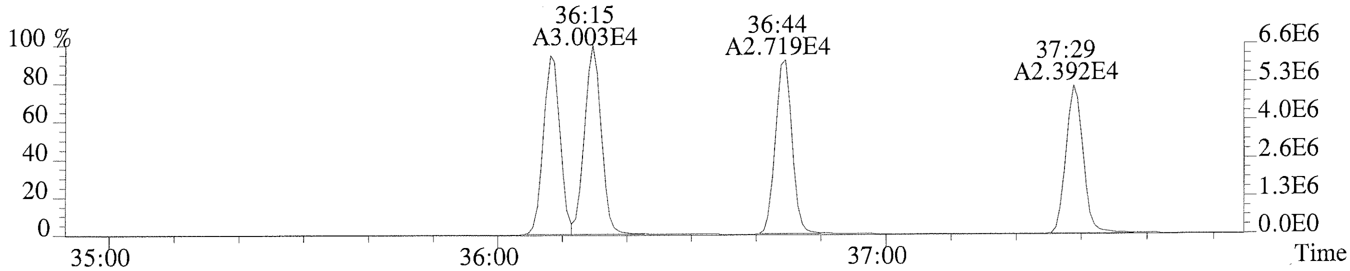
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



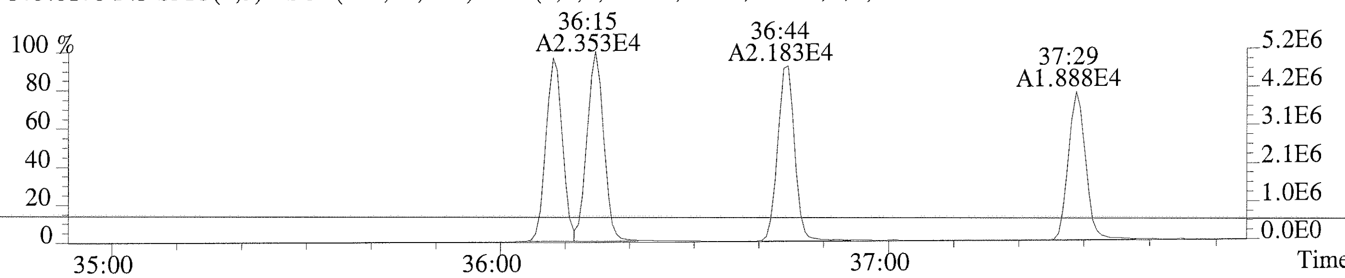
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



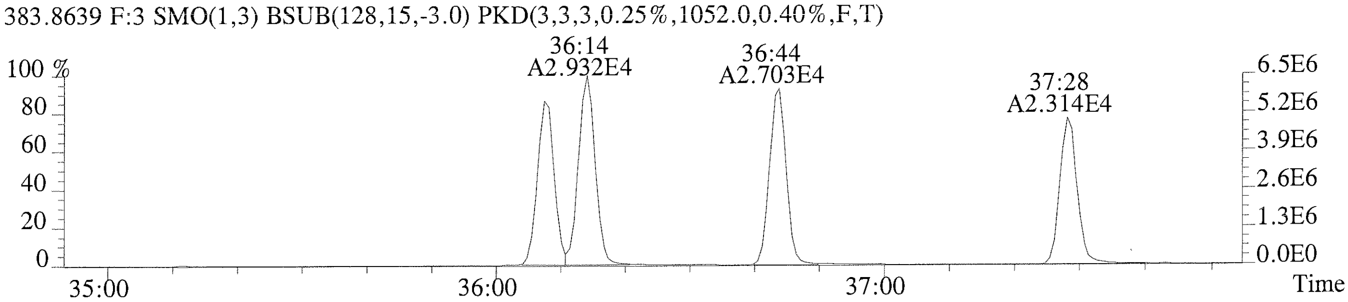
File:P174000 #1-275 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



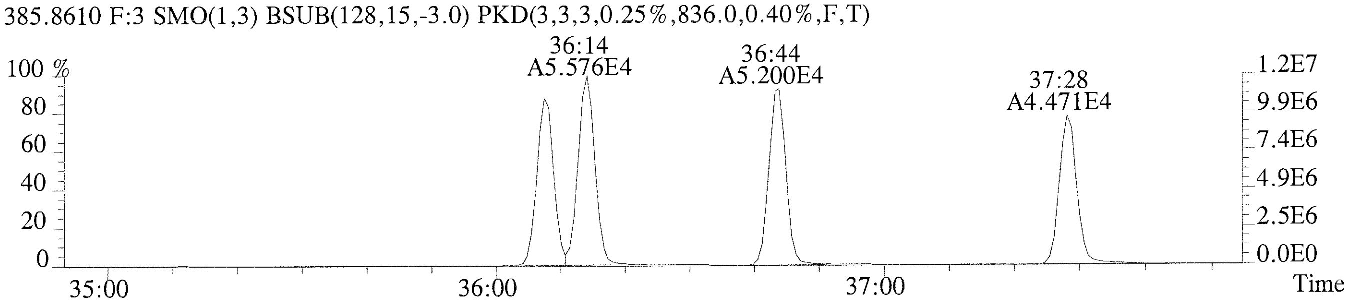
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



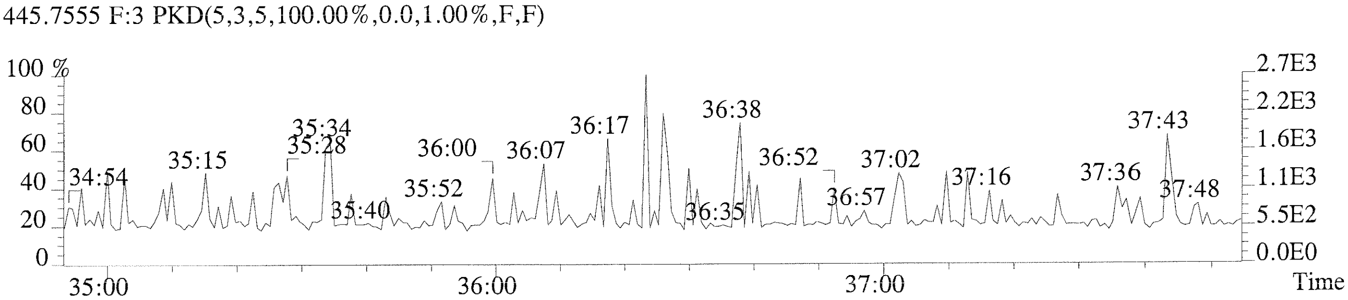
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



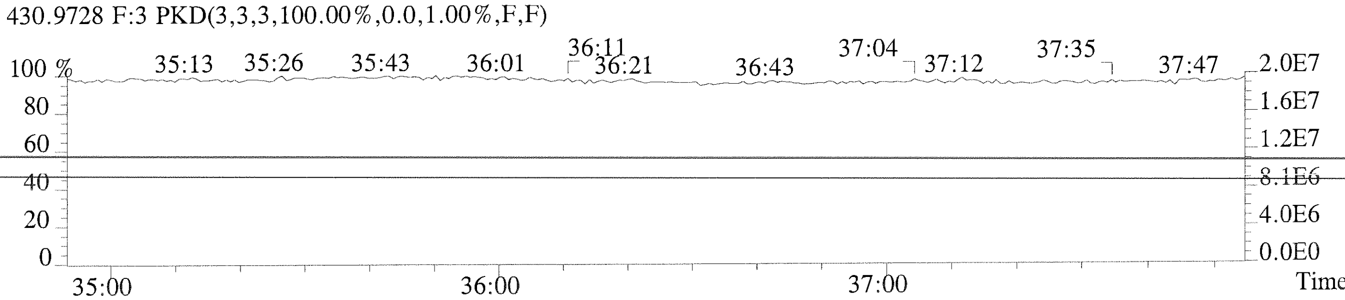
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



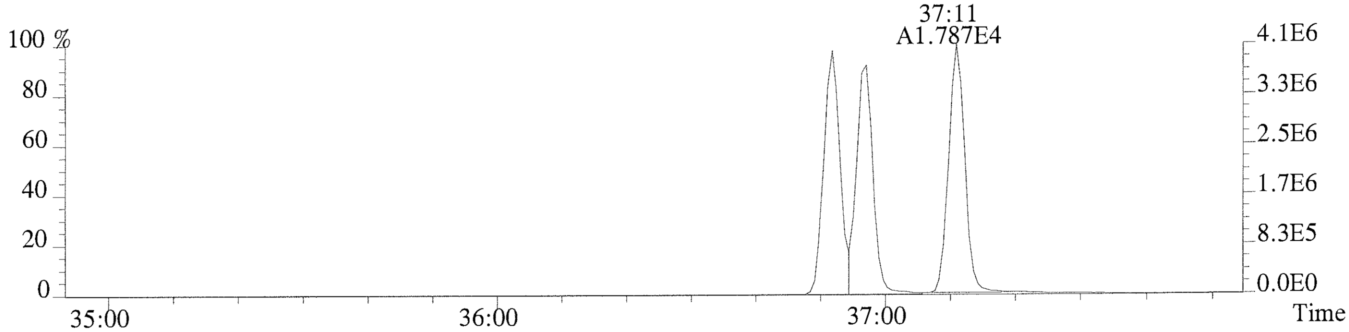
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



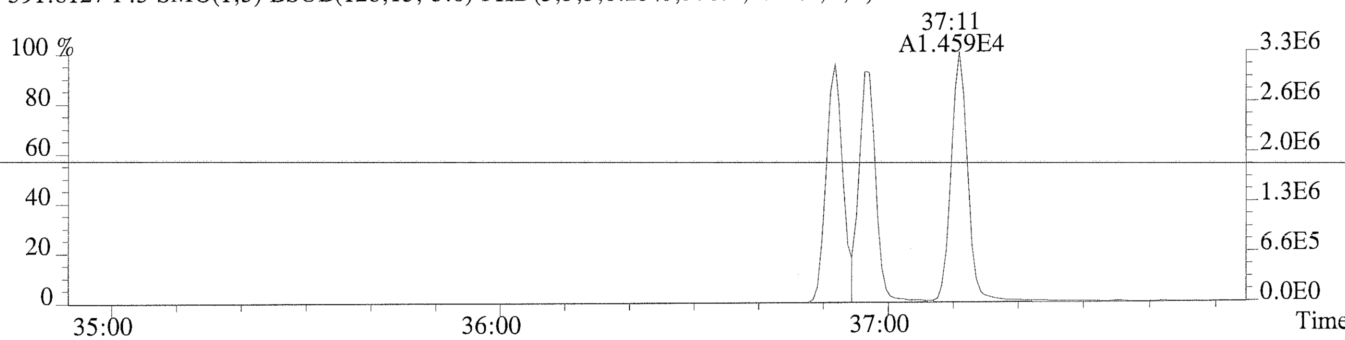
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



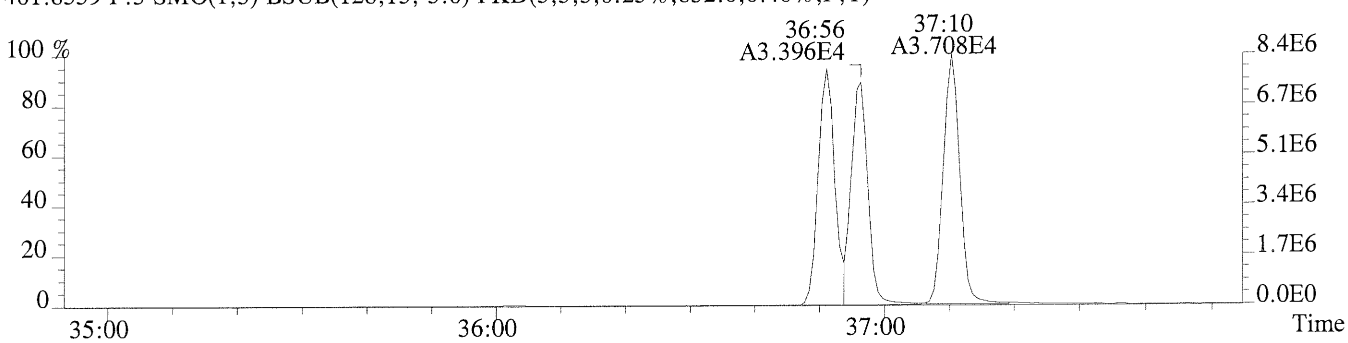
File:P174000 #1-275 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



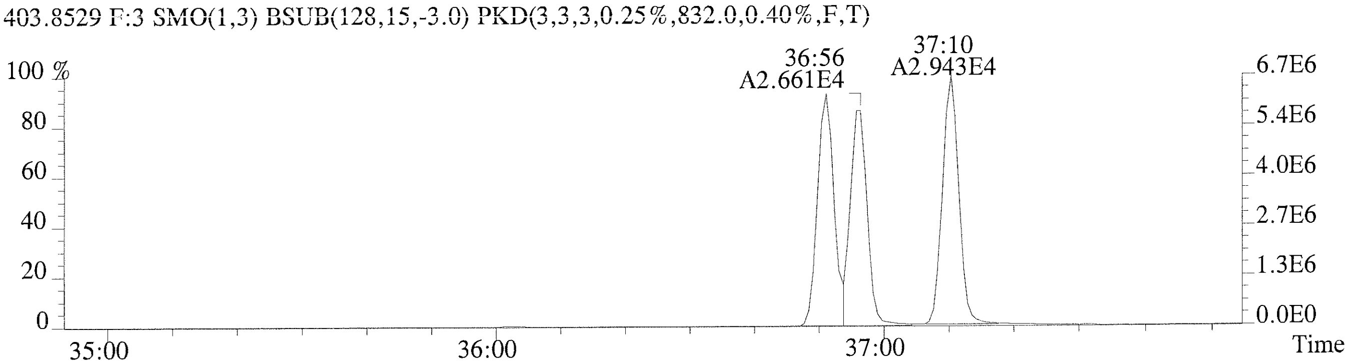
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



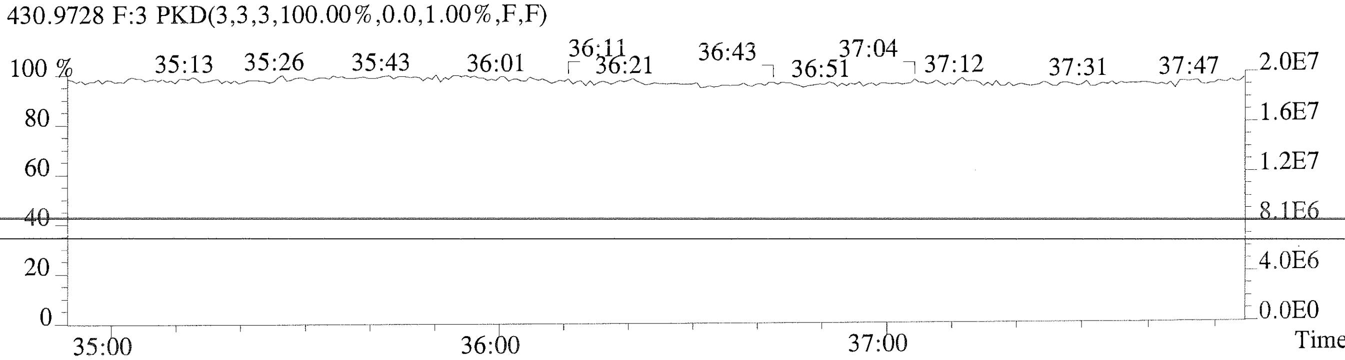
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



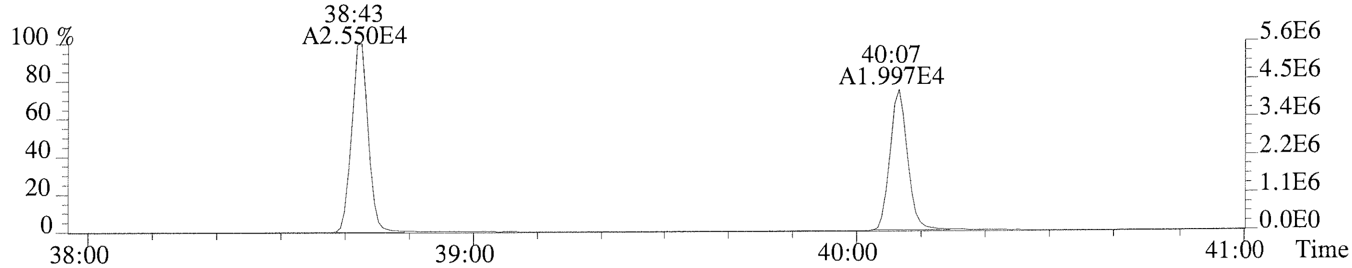
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



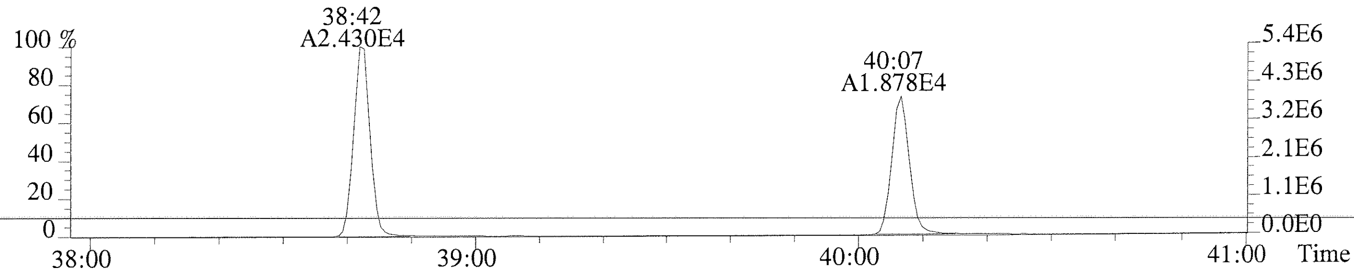
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



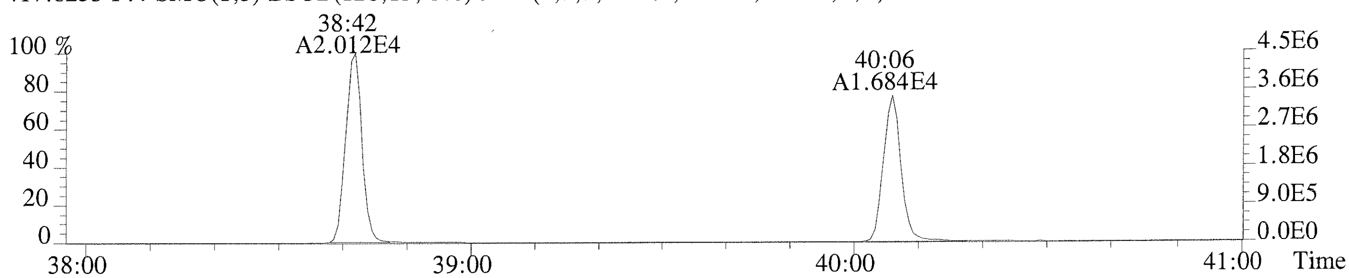
File:P174000 #1-278 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3676.0,0.50%,F,T)



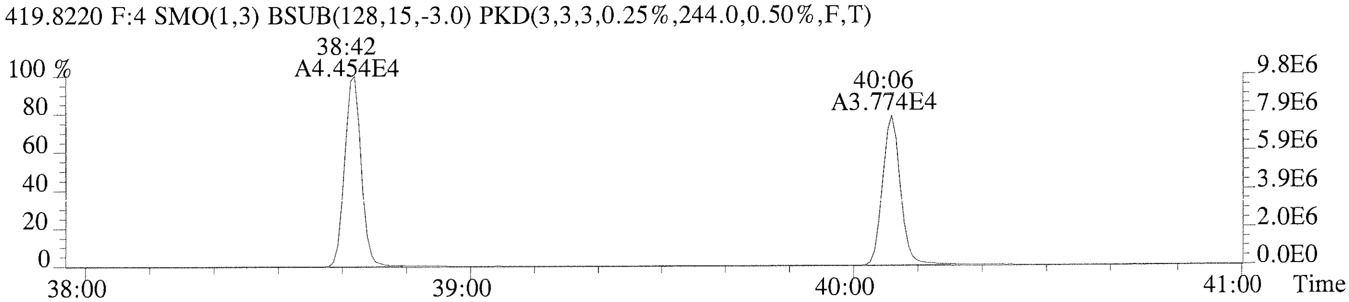
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.50%,F,T)



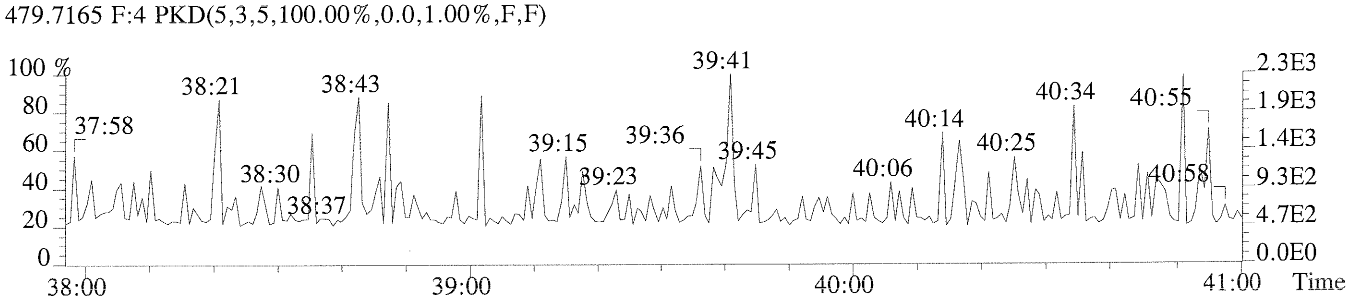
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.50%,F,T)



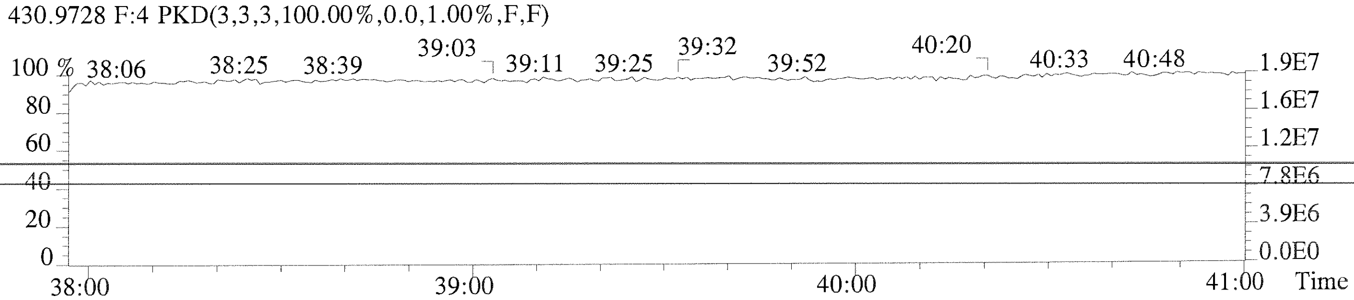
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.50%,F,T)



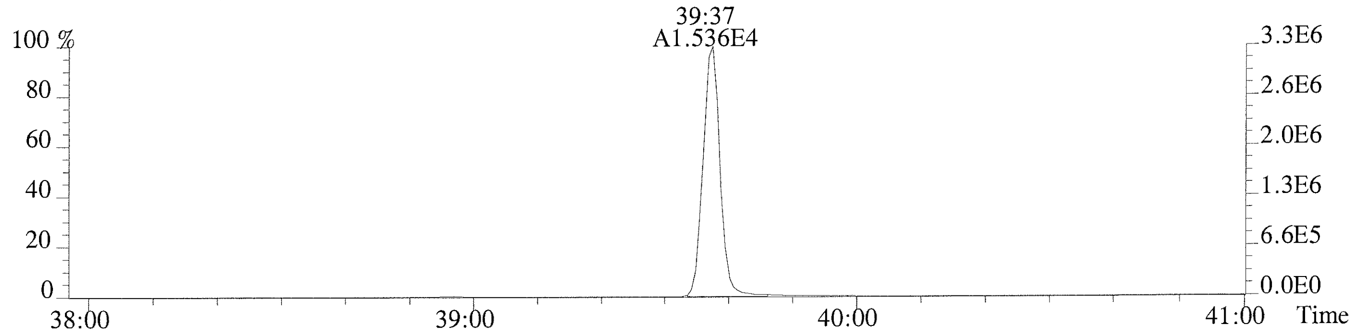
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



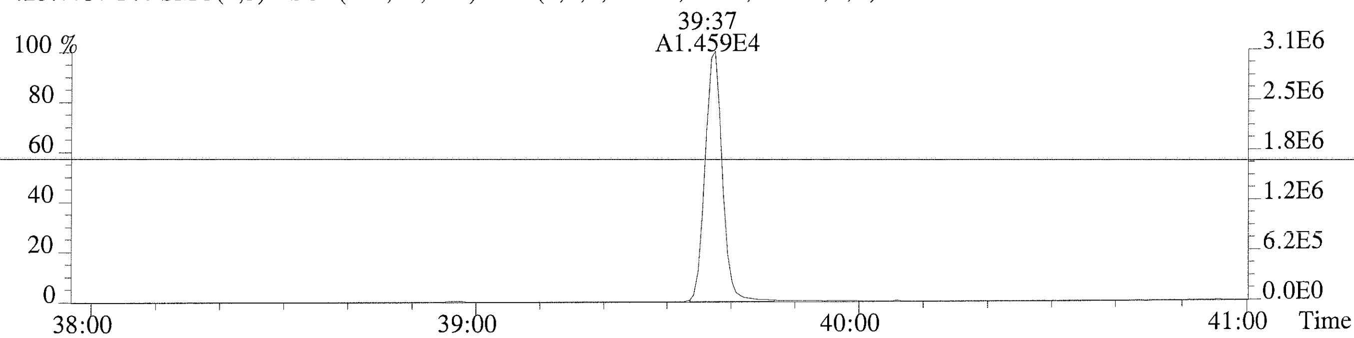
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



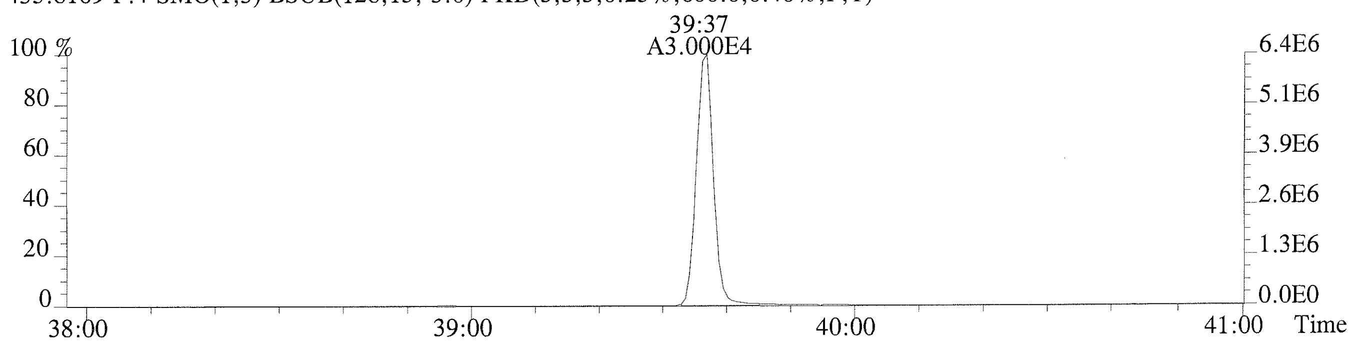
File:P174000 #1-278 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



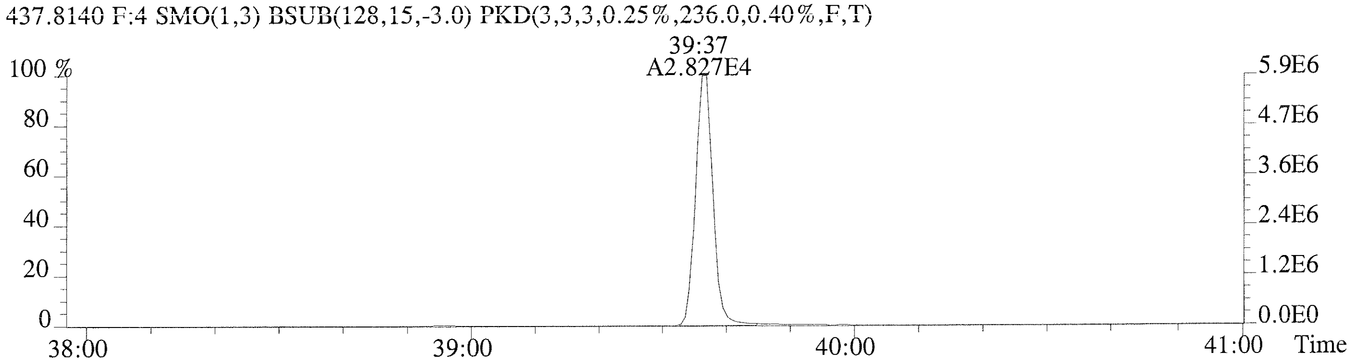
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



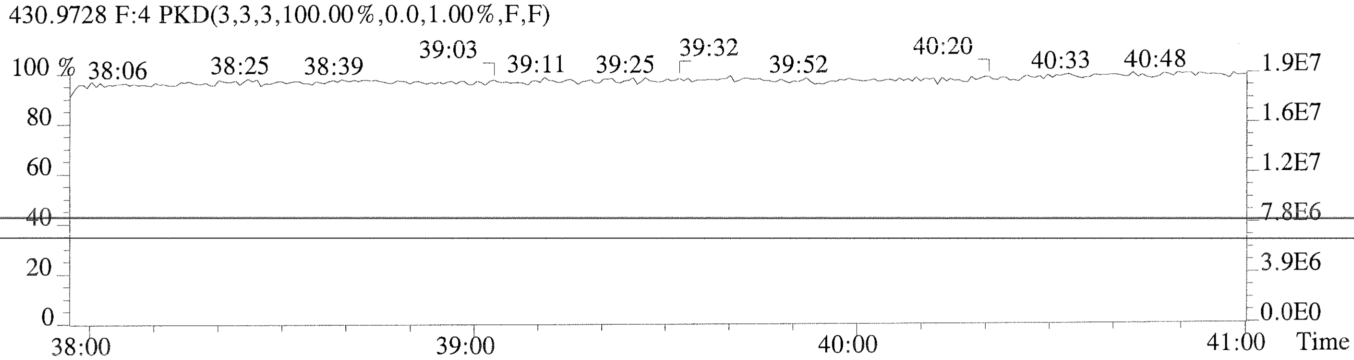
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

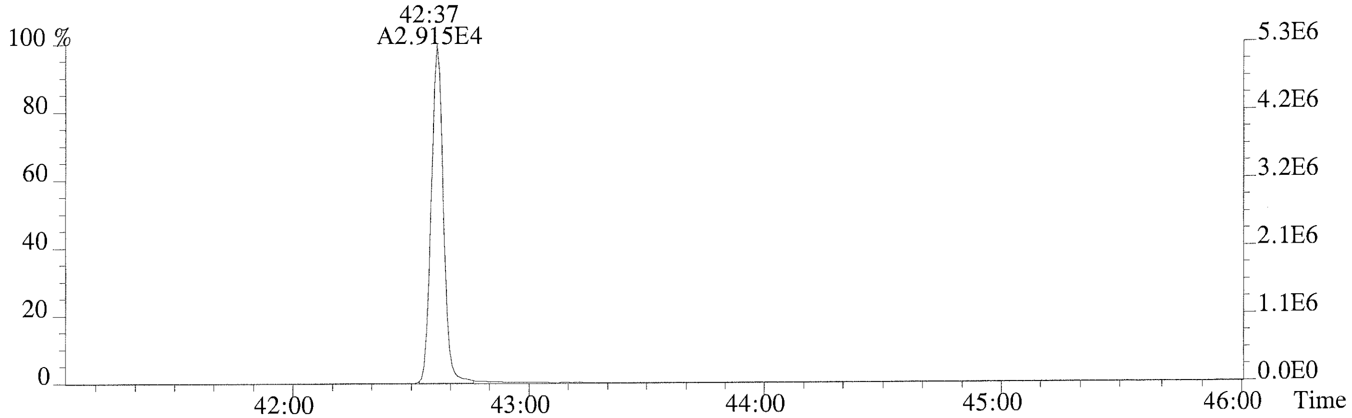


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

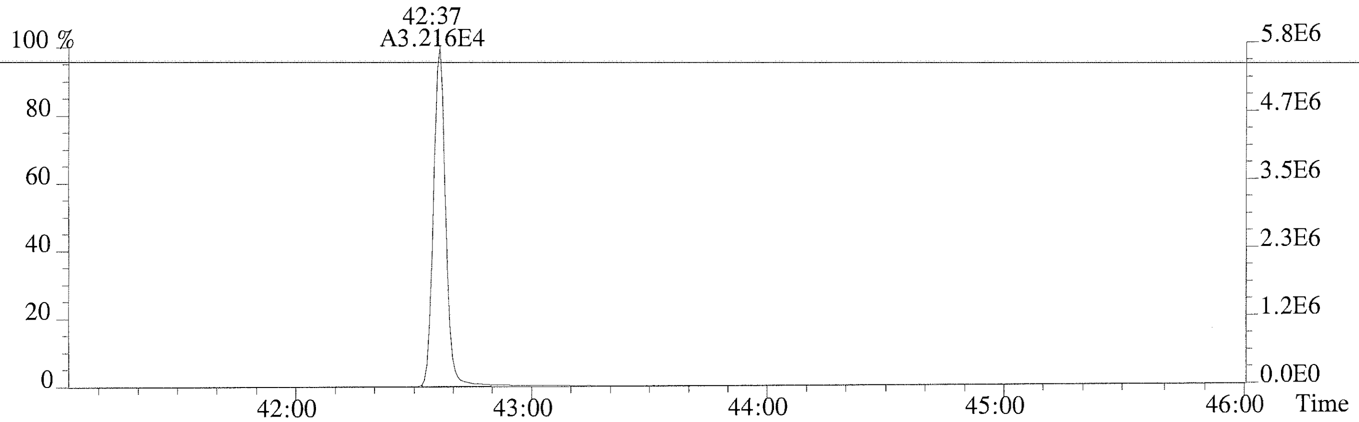


File:P174000 #1-457 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

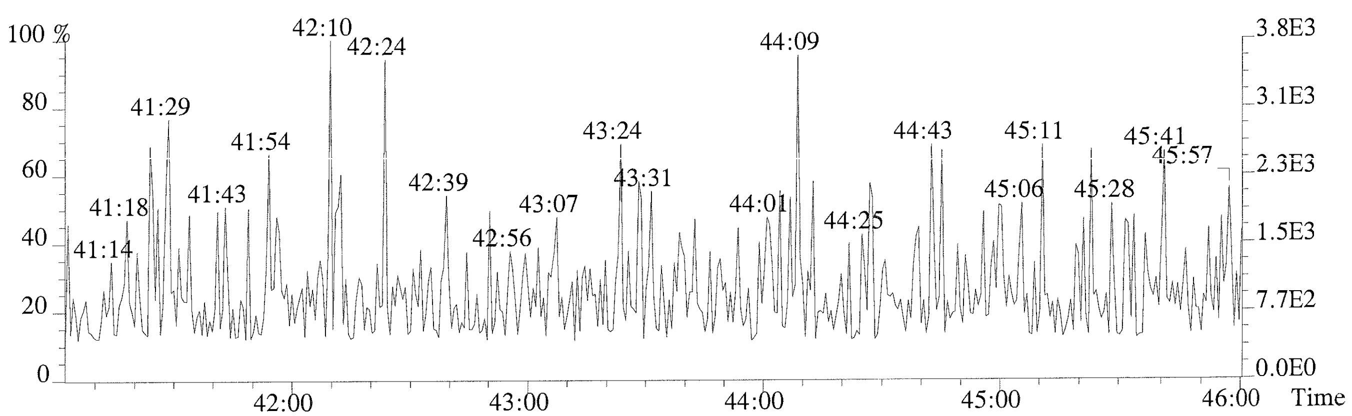
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



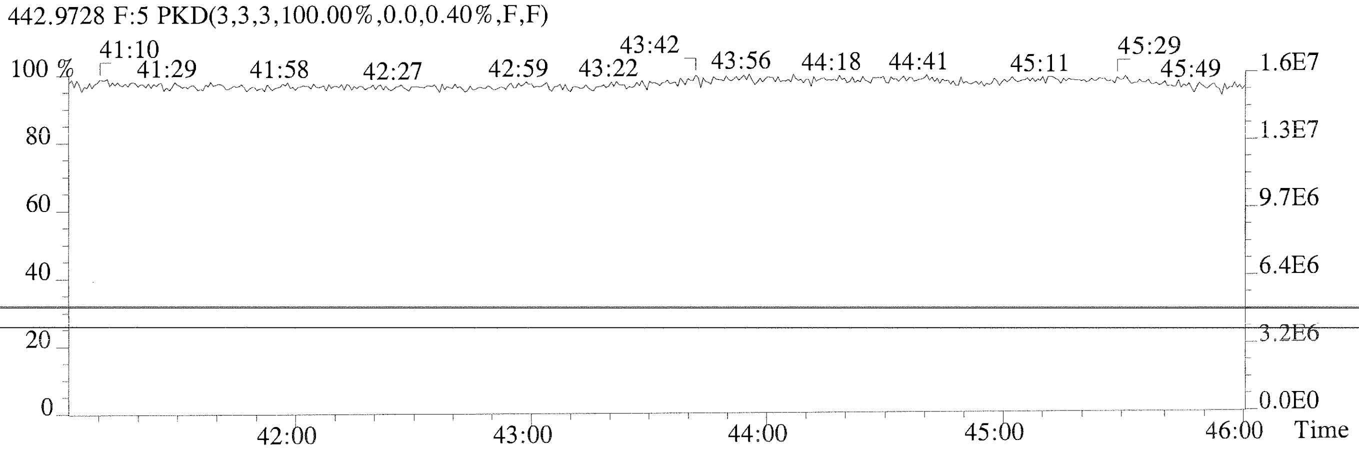
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

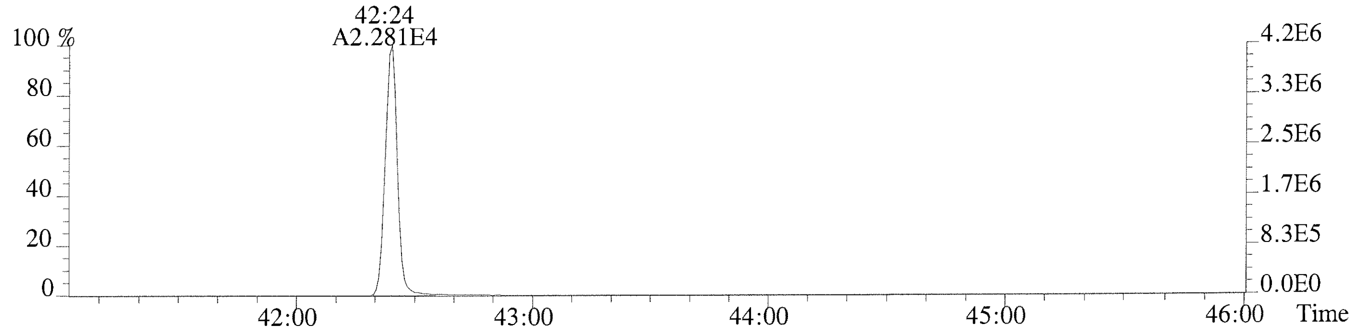


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

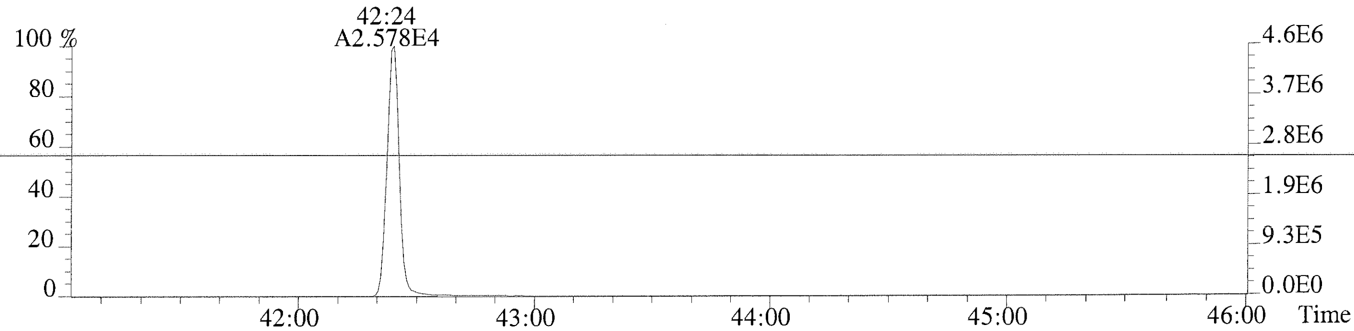


File:P174000 #1-457 Acq:10-OCT-2014 05:24:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

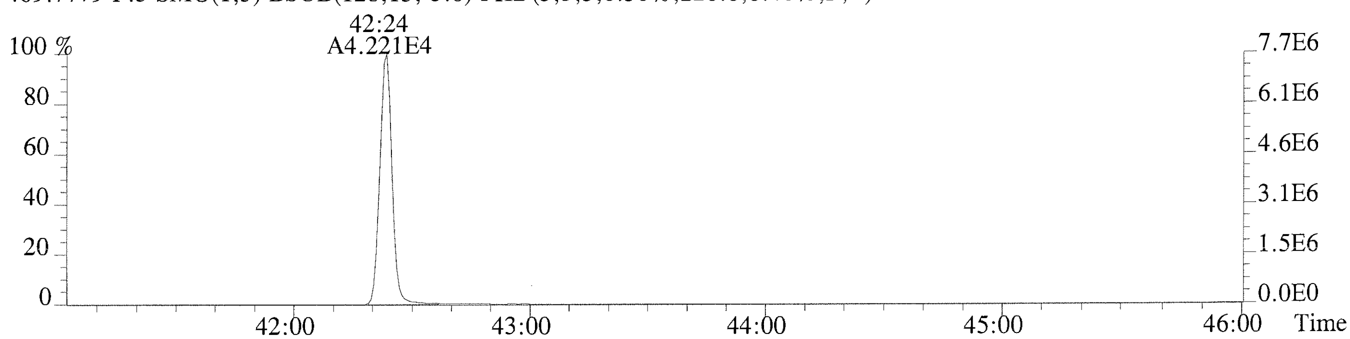
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



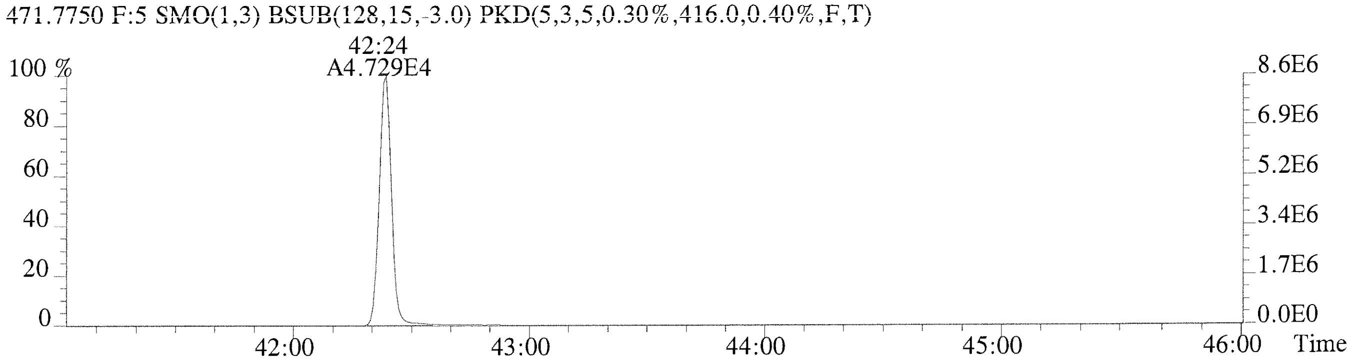
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



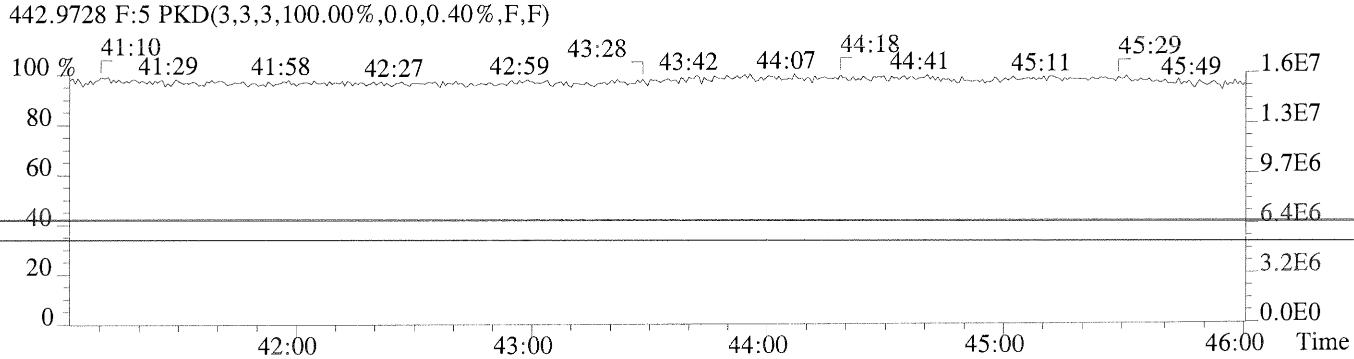
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P174010   Analysis Date: 10-OCT-14 Time: 14:08:03

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.3	7.8 - 12.9	-6.8
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	49	39 - 65	-2.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	3.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	49	41 - 61	-1.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.91	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.4	8.4 - 12.0	-6.4
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	53	41 - 60	6.7
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	52	41 - 61	4.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	54	45 - 56	7.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	54	44 - 57	7.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	56	45 - 56	12.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	54	44 - 57	7.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	54	45 - 55	8.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	54	43 - 58	8.4
OCDF	M+2/M+4	0.92	0.76-1.02	106	63 - 159	5.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- ~~20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4,~~ Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P174010   Analysis Date: 10-OCT-14   Time: 14:08:03

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	95	82 - 121	-5.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	80	62 - 160	-20.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	107	85 - 117	7.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	96	85 - 118	-4.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	95	72 - 138	-5.1
13C-OCDD	M+2/M+4	0.88	0.76-1.02	157	96 - 415	-21.3
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	96	71 - 140	-4.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	78	76 - 130	-21.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	81	77 - 130	-19.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	105	76 - 131	4.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	104	70 - 143	4.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	97	74 - 135	-3.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	104	73 - 137	4.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	93	78 - 129	-7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	94	77 - 129	-5.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.0	7.8 - 12.7	-9.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #16 Filename P174010 Samp: 1 Inj: 1 Acquired: 10-OCT-14 14:08:03
Processed: 10-OCT-14 15:16:19 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:32	3.138e+03	4.103e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:38	2.854e+04	1.776e+04	1.61	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:31	2.680e+04	1.680e+04	1.60	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:09	2.527e+04	1.993e+04	1.27	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:15	2.742e+04	2.150e+04	1.28	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:44	2.480e+04	1.984e+04	1.25	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:29	2.225e+04	1.759e+04	1.26	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:43	2.017e+04	1.936e+04	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	1.738e+04	1.665e+04	1.04	yes	no	1.324
10	Unk	OCDF	42:37	2.443e+04	2.643e+04	0.92	yes	no	1.307
~~11~~	~~Unk~~	~~2,3,7,8-TCDD~~	~~29:17~~	~~2.478e+03~~	~~3.185e+03~~	~~0.78~~	~~yes~~	~~no~~	~~1.037~~
12	Unk	1,2,3,7,8-PeCDD	33:48	1.735e+04	1.096e+04	1.58	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	36:52	1.610e+04	1.288e+04	1.25	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	36:57	1.592e+04	1.269e+04	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:11	1.677e+04	1.360e+04	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.328e+04	1.269e+04	1.05	yes	no	1.016
17	Unk	OCDD	42:24	1.916e+04	2.111e+04	0.91	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:31	3.575e+04	4.610e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:37	5.217e+04	3.313e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:30	5.279e+04	3.307e+04	1.60	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:08	2.309e+04	4.440e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:14	2.661e+04	5.088e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:44	2.489e+04	4.723e+04	0.53	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	2.096e+04	4.030e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:42	1.622e+04	3.575e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	1.465e+04	3.277e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:17	2.566e+04	3.293e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:47	3.797e+04	2.414e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:51	3.172e+04	2.523e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	3.116e+04	2.472e+04	1.26	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	2.585e+04	2.469e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	42:23	3.452e+04	3.917e+04	0.88	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:43	2.606e+04	3.295e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	3.477e+04	2.697e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:17	5.990e+03				no	1.125

ALS ENVIRONMENTAL
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1613RESP

CLIENT ID.
72675

Run #16 Filename P174010 Samp: 1 Inj: 1 Acquired: 10-OCT-14 14:08:03
Processed: 10-OCT-14 15:16:191 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.45e+05	1.08e+02	5.0e+03	7.21e+05	6.88e+02	1.0e+03
2	1,2,3,7,8-PeCDF	5.56e+06	2.88e+02	1.9e+04	3.43e+06	5.56e+02	6.2e+03
3	2,3,4,7,8-PeCDF	5.42e+06	2.88e+02	1.9e+04	3.42e+06	5.56e+02	6.2e+03
4	1,2,3,4,7,8-HxCDF	5.61e+06	3.80e+02	1.5e+04	4.36e+06	2.60e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	5.89e+06	3.80e+02	1.5e+04	4.68e+06	2.60e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	5.61e+06	3.80e+02	1.5e+04	4.48e+06	2.60e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.63e+06	3.80e+02	1.2e+04	3.73e+06	2.60e+02	1.4e+04
8	1,2,3,4,6,7,8-HpCDF	4.61e+06	9.76e+02	4.7e+03	4.40e+06	5.56e+02	7.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.60e+06	9.76e+02	3.7e+03	3.48e+06	5.56e+02	6.3e+03
10	OCDF	4.32e+06	6.40e+01	6.7e+04	4.70e+06	5.24e+02	9.0e+03
~~11~~	~~2,3,7,8-TCDD~~	~~4.47e+05~~	~~5.44e+02~~	~~8.2e+02~~	~~5.83e+05~~	~~4.08e+02~~	~~1.4e+03~~
12	1,2,3,7,8-PeCDD	3.59e+06	6.40e+02	5.6e+03	2.27e+06	1.64e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	3.72e+06	2.32e+02	1.6e+04	3.00e+06	5.28e+02	5.7e+03
14	1,2,3,6,7,8-HxCDD	3.56e+06	2.32e+02	1.5e+04	2.84e+06	5.28e+02	5.4e+03
15	1,2,3,7,8,9-HxCDD	3.79e+06	2.32e+02	1.6e+04	3.05e+06	5.28e+02	5.8e+03
16	1,2,3,4,6,7,8-HpCDD	2.92e+06	4.48e+02	6.5e+03	2.77e+06	1.00e+02	2.8e+04
17	OCDD	3.51e+06	2.48e+02	1.4e+04	3.89e+06	1.36e+02	2.9e+04
18	13C-2,3,7,8-TCDF	6.30e+06	7.84e+02	8.0e+03	8.07e+06	5.52e+02	1.5e+04
19	13C-1,2,3,7,8-PeCDF	1.00e+07	2.20e+02	4.5e+04	6.41e+06	2.36e+02	2.7e+04
20	13C-2,3,4,7,8-PeCDF	1.09e+07	2.20e+02	4.9e+04	6.84e+06	2.36e+02	2.9e+04
21	13C-1,2,3,4,7,8-HxCDF	5.09e+06	2.68e+02	1.9e+04	9.72e+06	6.44e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	5.77e+06	2.68e+02	2.2e+04	1.11e+07	6.44e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	5.59e+06	2.68e+02	2.1e+04	1.06e+07	6.44e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	4.46e+06	2.68e+02	1.7e+04	8.61e+06	6.44e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+06	1.14e+03	3.3e+03	8.16e+06	1.36e+02	6.0e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.99e+06	1.14e+03	2.6e+03	6.84e+06	1.36e+02	5.0e+04
27	13C-2,3,7,8-TCDD	4.79e+06	2.39e+03	2.0e+03	6.15e+06	1.20e+03	5.1e+03
28	13C-1,2,3,7,8-PeCDD	7.60e+06	4.52e+02	1.7e+04	4.84e+06	1.00e+02	4.8e+04
29	13C-1,2,3,4,7,8-HxCDD	7.34e+06	6.24e+02	1.2e+04	5.88e+06	6.44e+02	9.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.91e+06	6.24e+02	1.1e+04	5.53e+06	6.44e+02	8.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.64e+06	6.96e+02	8.1e+03	5.32e+06	2.28e+02	2.3e+04
32	13C-OCDD	6.35e+06	2.20e+02	2.9e+04	7.21e+06	2.92e+02	2.5e+04
33	13C-1,2,3,4-TCDD	4.82e+06	2.39e+03	2.0e+03	6.07e+06	1.20e+03	5.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.64e+06	6.24e+02	1.2e+04	6.14e+06	6.44e+02	9.5e+03
35	37Cl-2,3,7,8-TCDD	1.10e+06	8.32e+02	1.3e+03			

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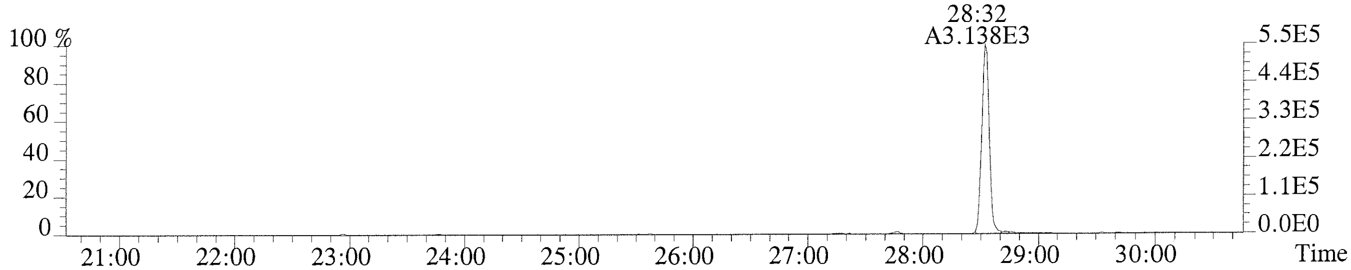
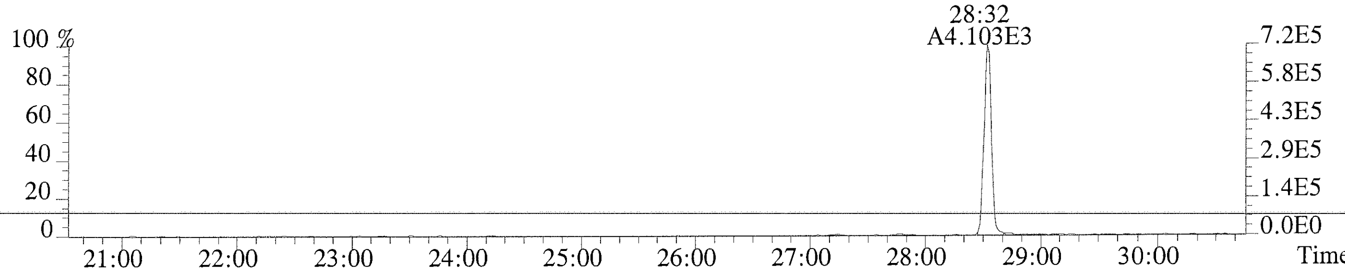
File:P174010 #1-788 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

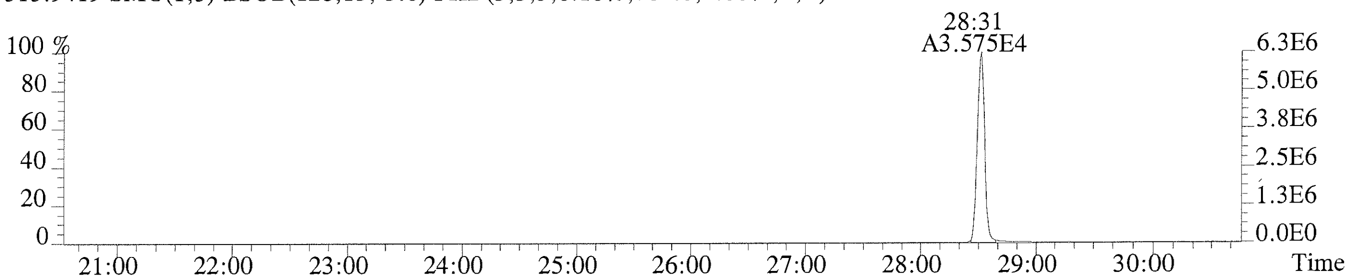
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,108.0,1.00%,F,T)



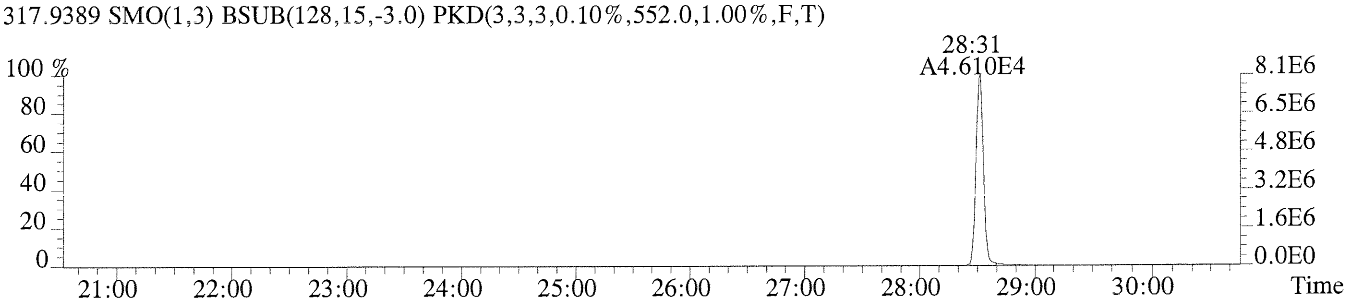
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



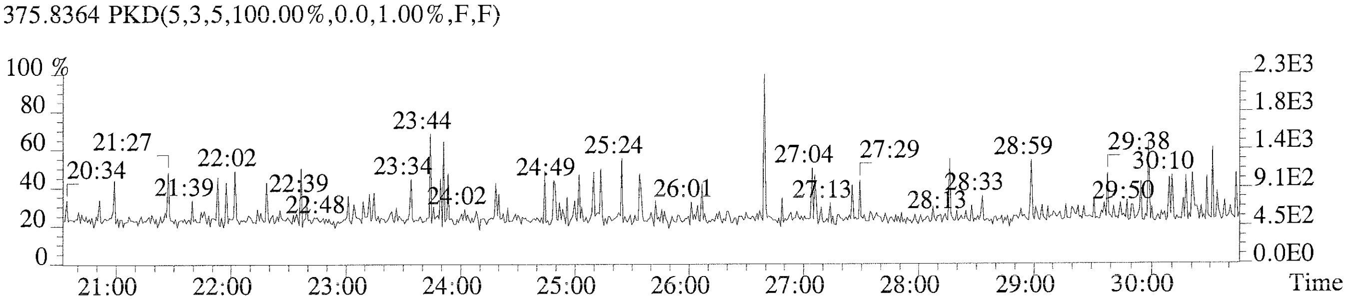
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



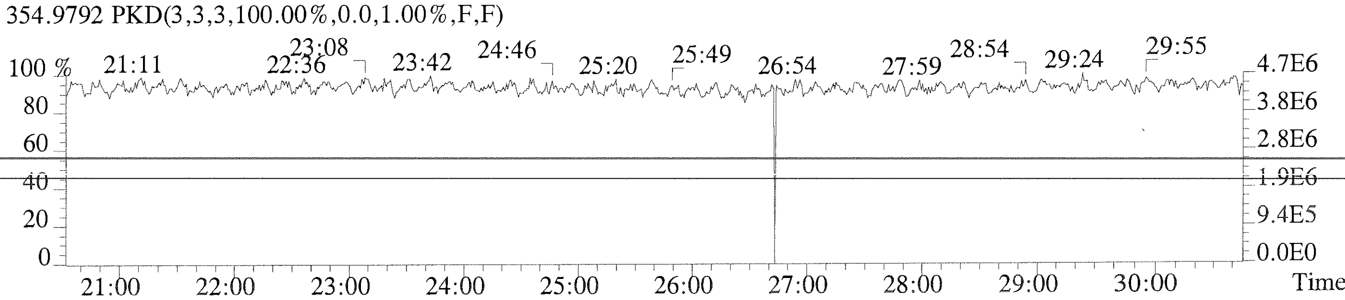
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

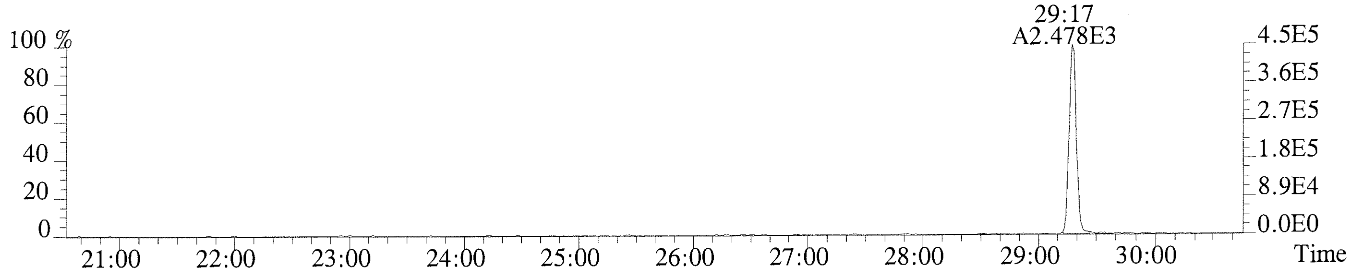


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

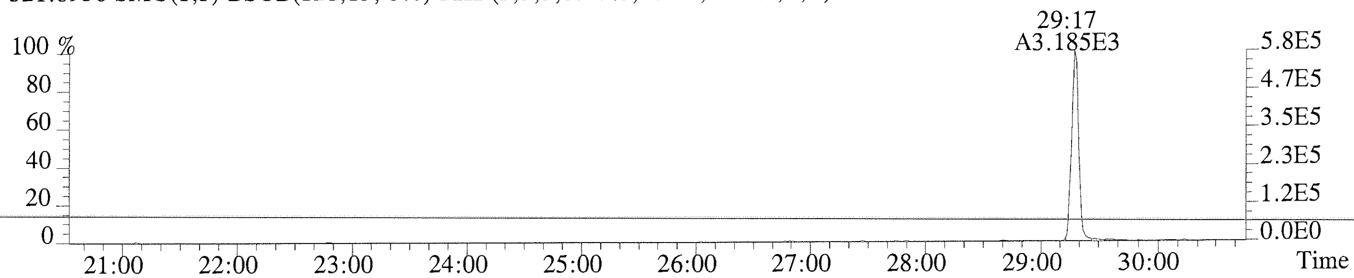


File:P174010 #1-788 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

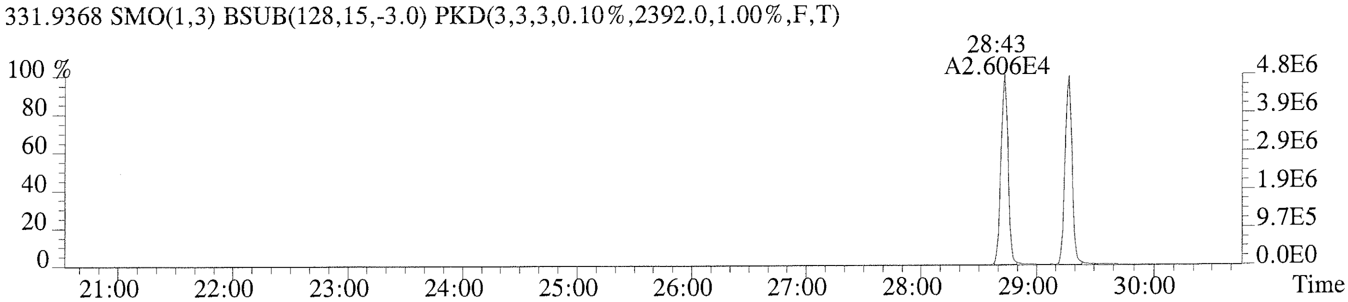
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



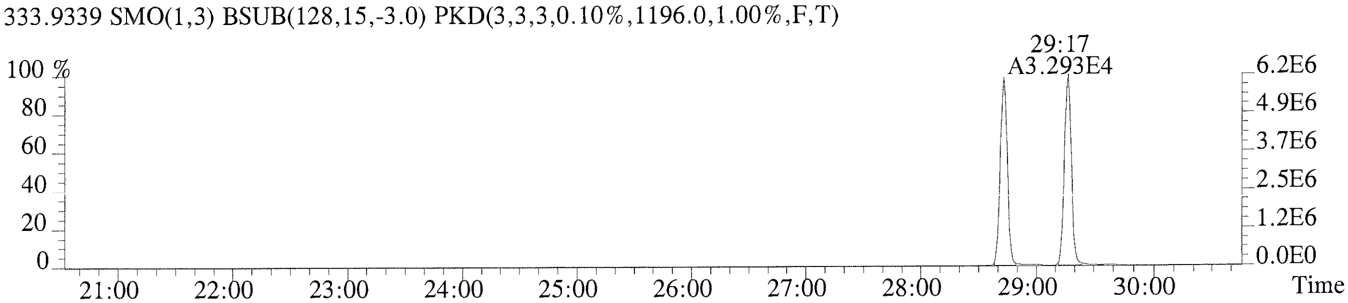
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



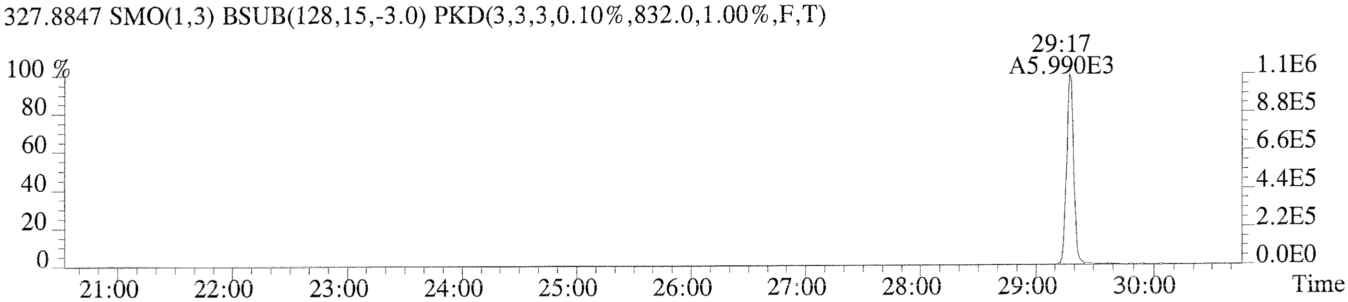
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



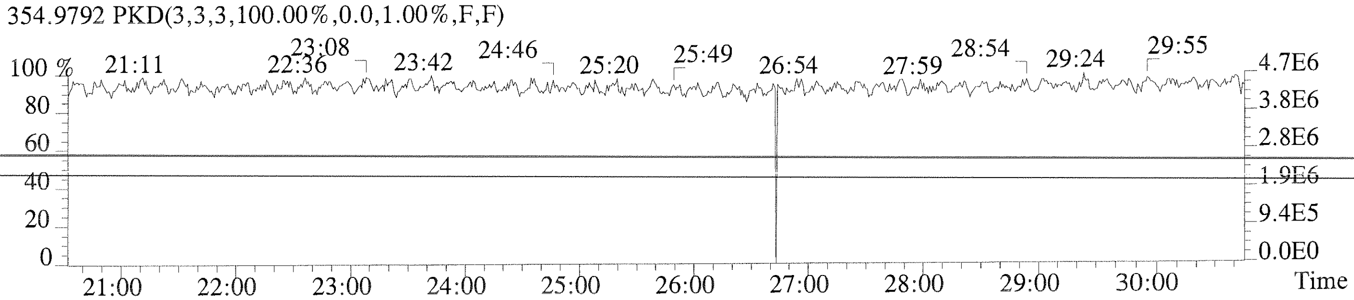
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P174010 #1-788 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

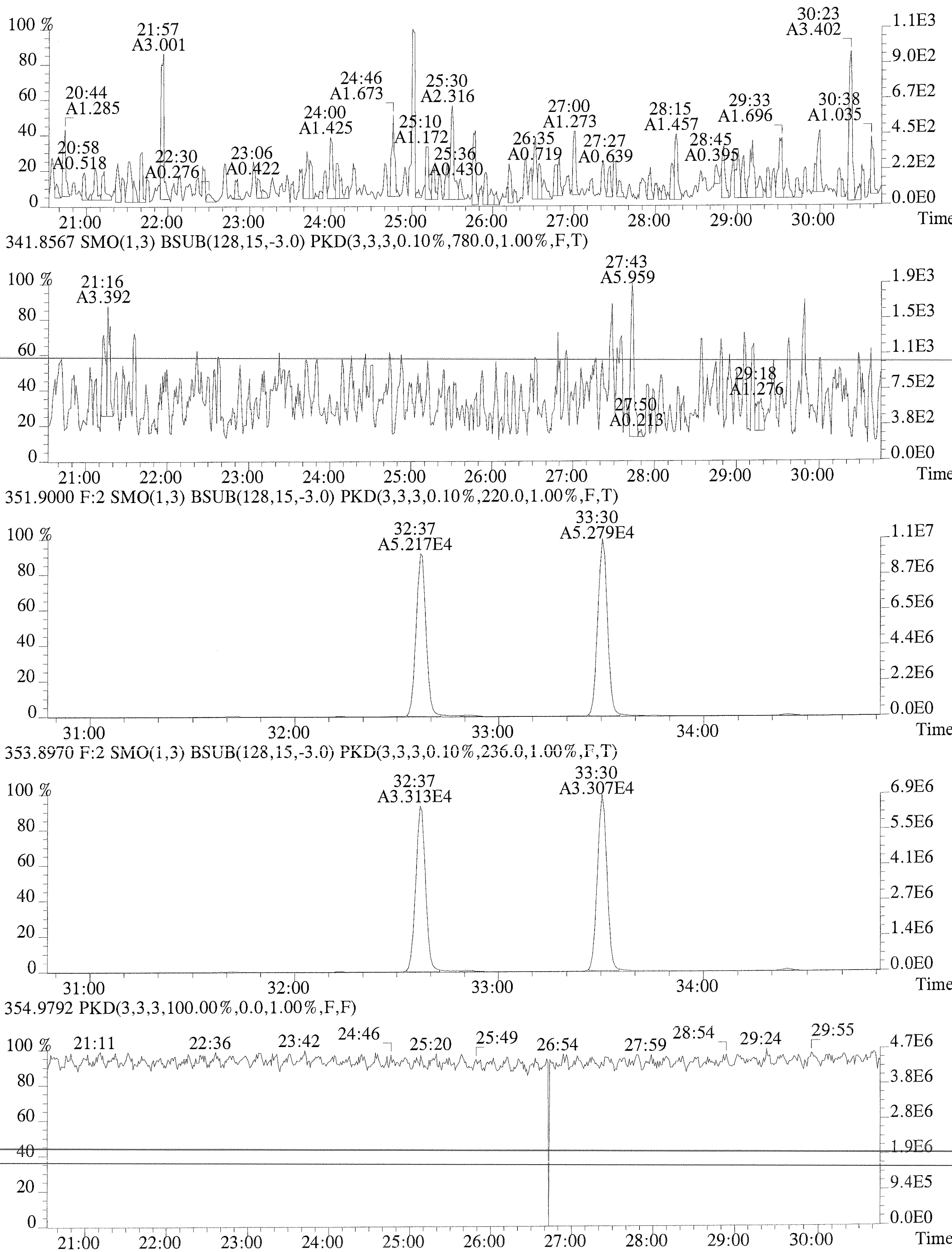
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,108.0,1.00%,F,T)

341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)

351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)

353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)

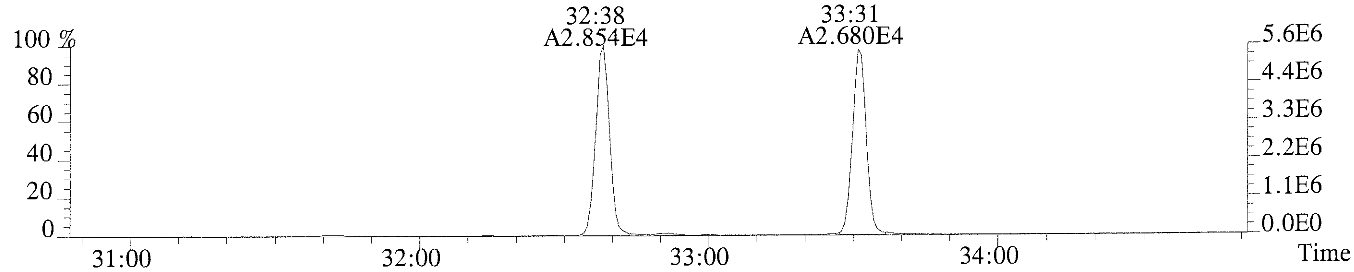
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



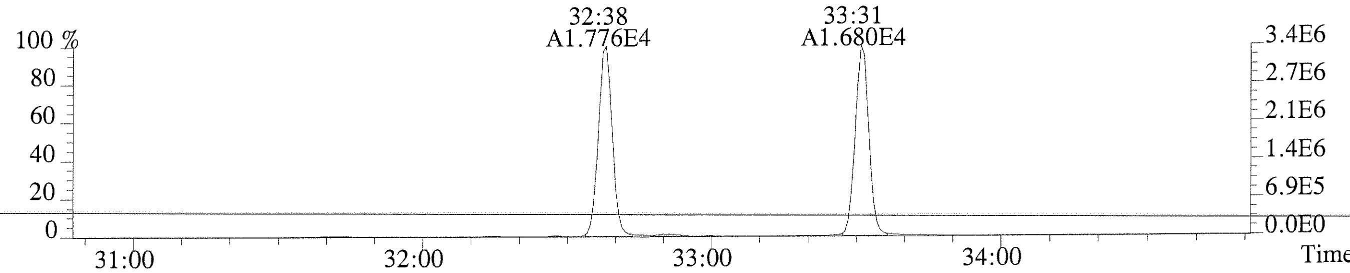
07 456

File:P174010 #1-369 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

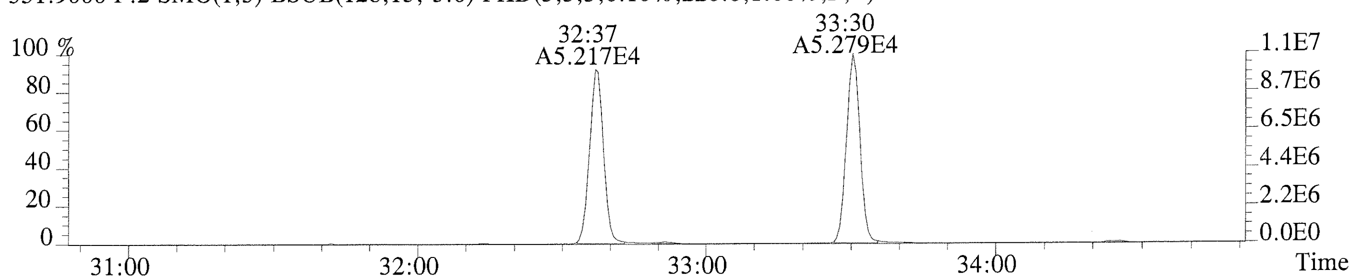
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



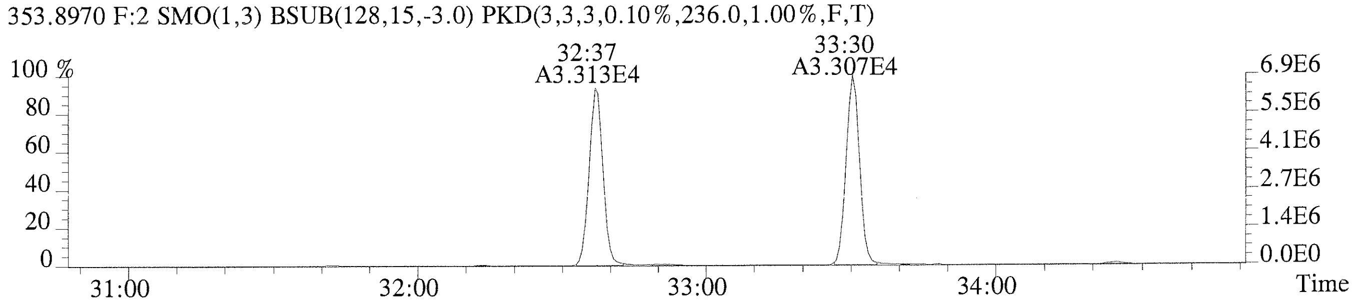
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



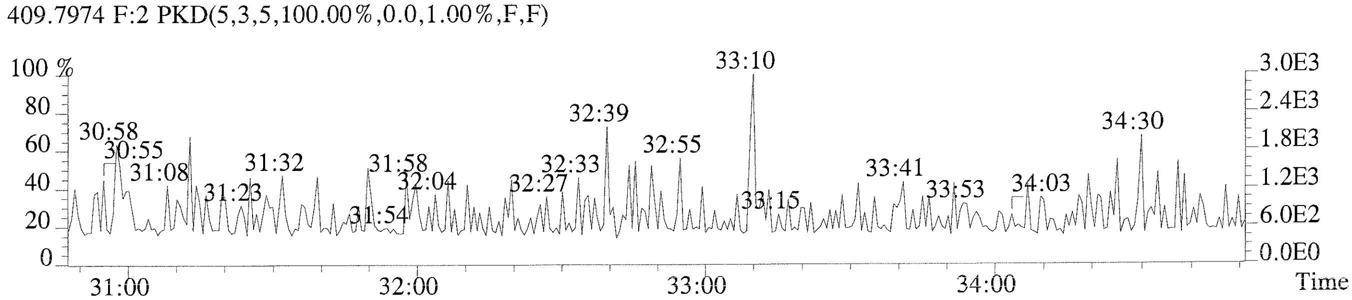
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



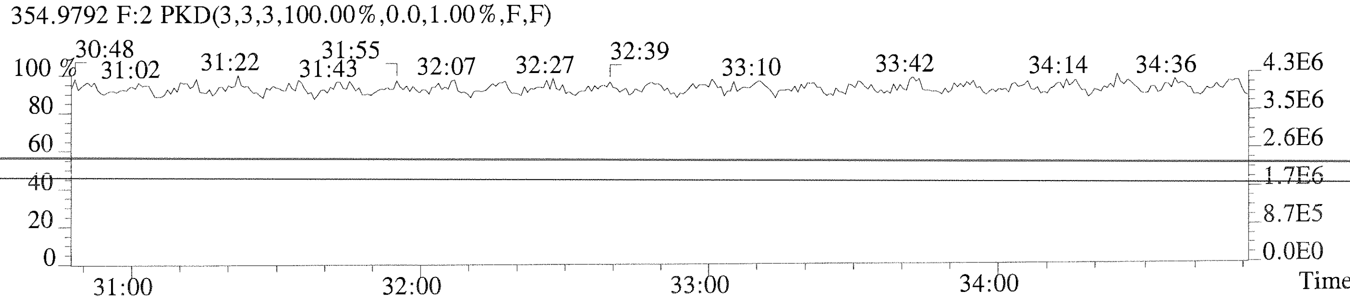
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



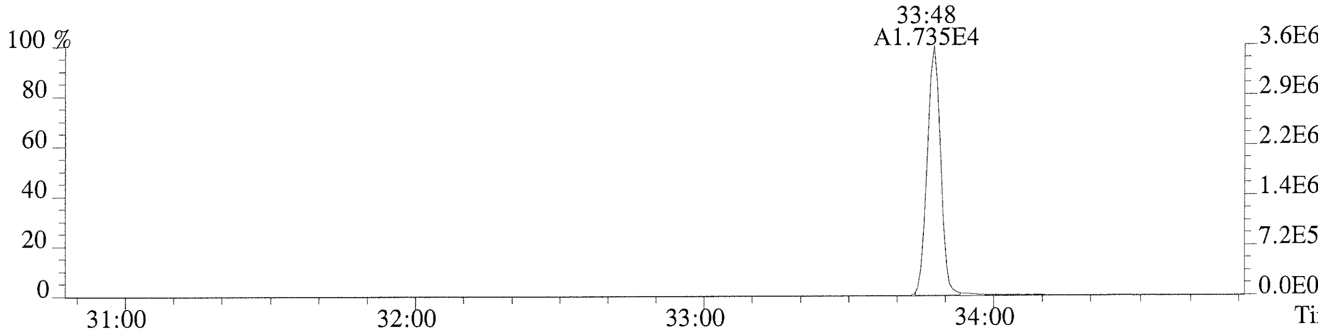
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



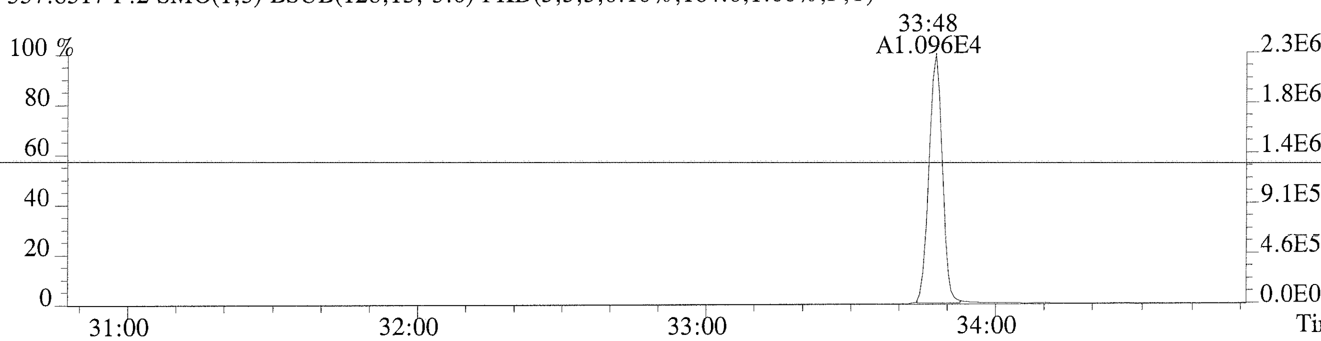
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



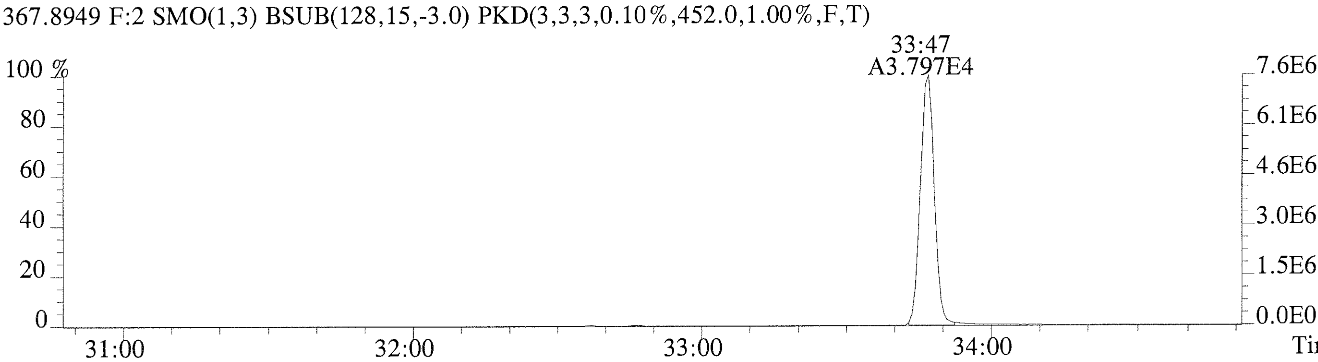
File:P174010 #1-369 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



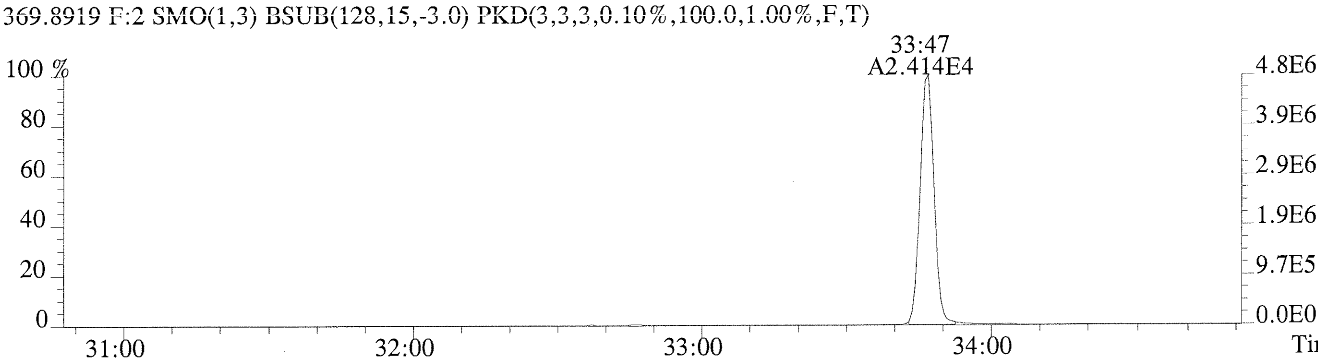
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



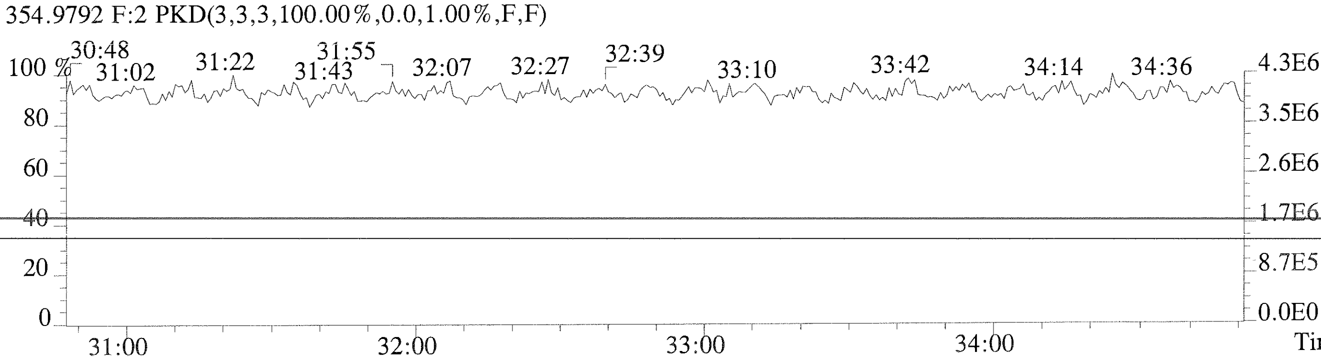
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



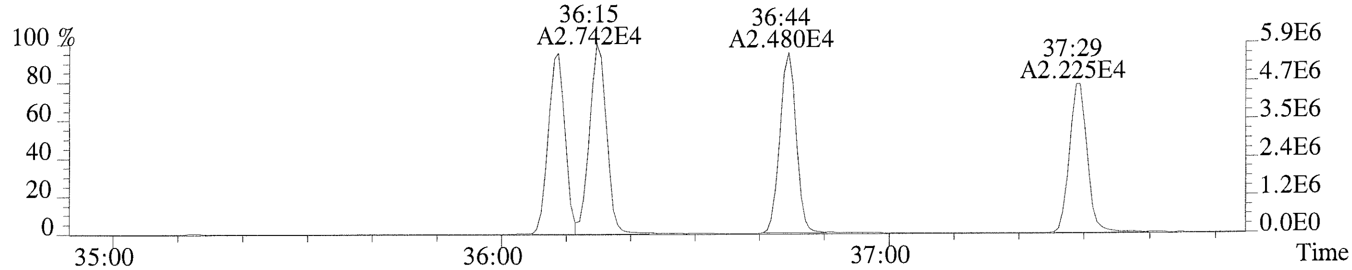
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



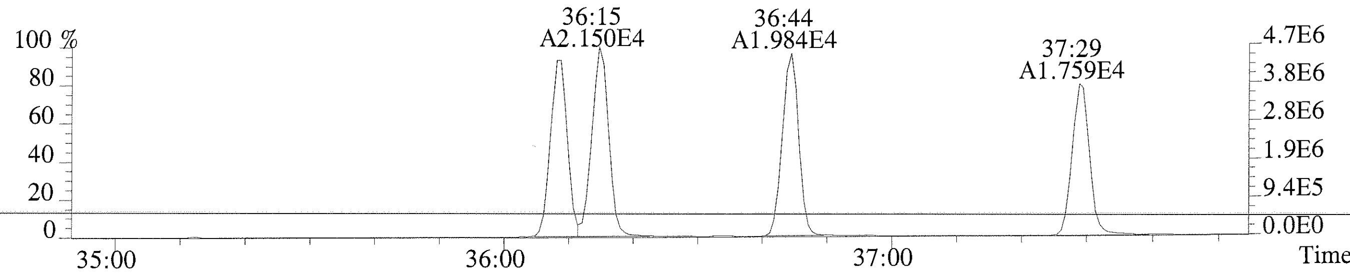
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



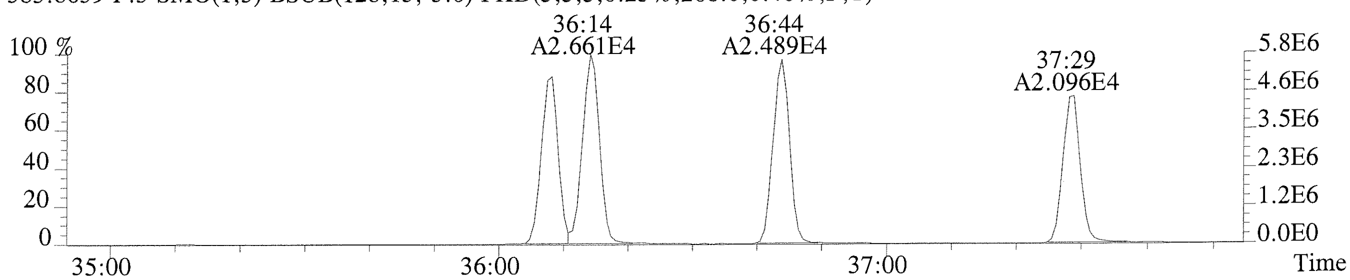
File:P174010 #1-275 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



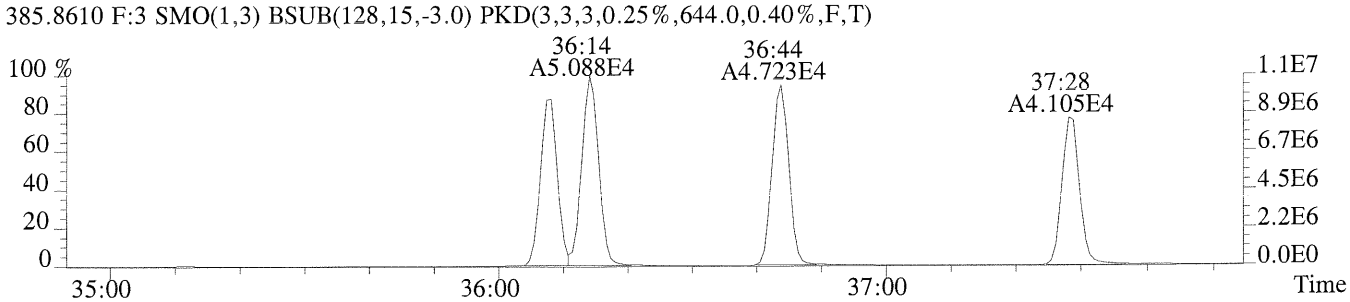
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



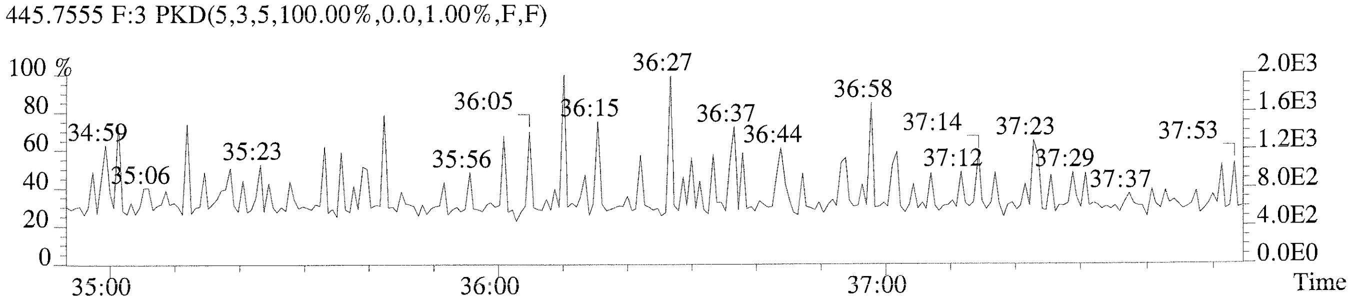
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



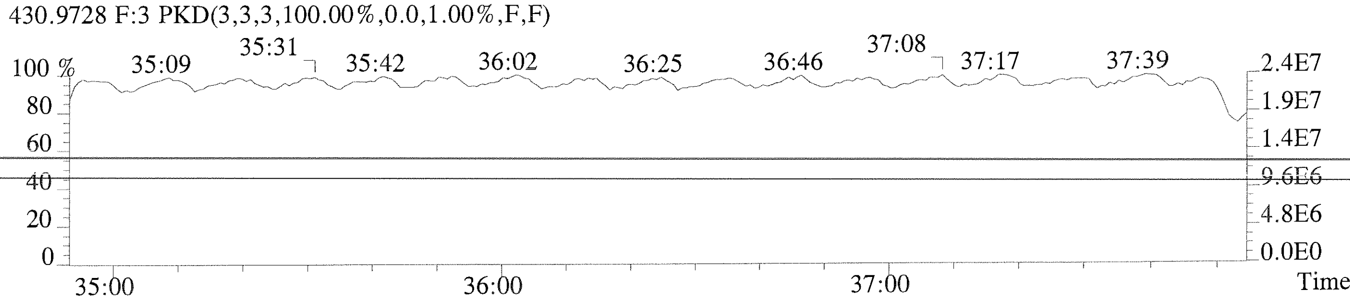
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

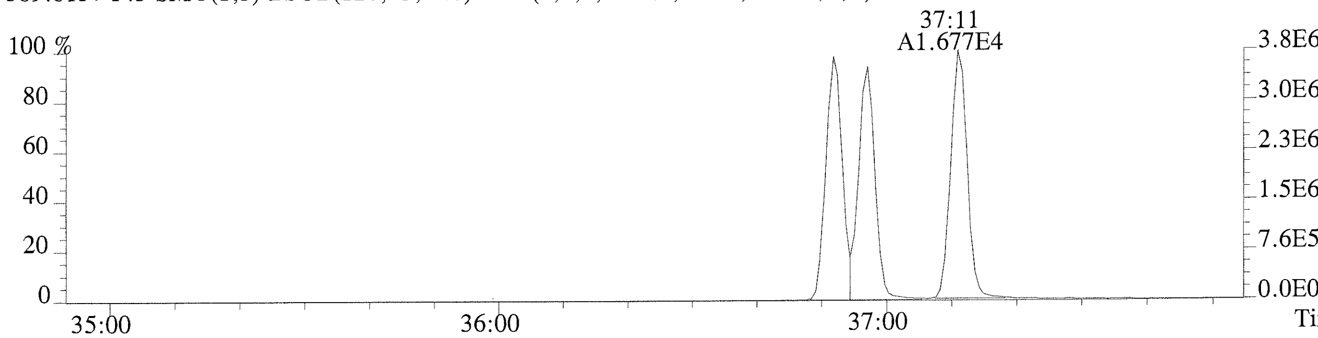


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

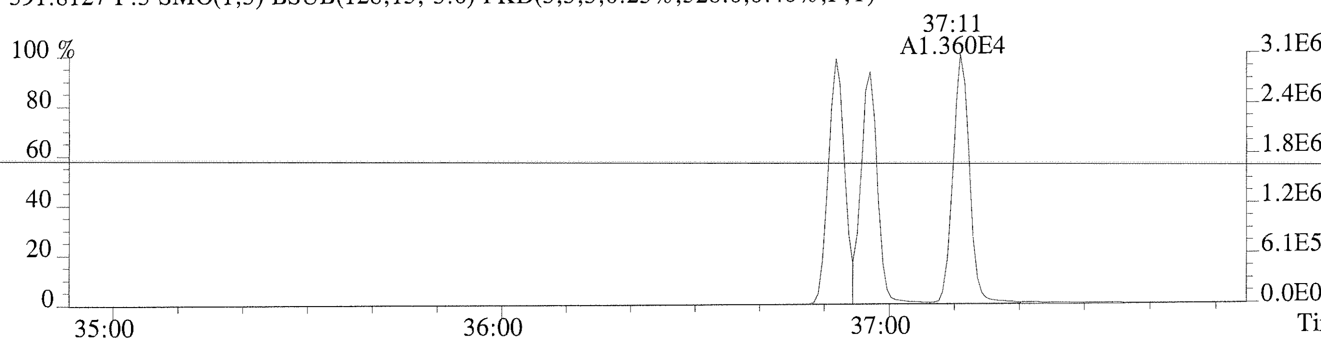


File:P174010 #1-275 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

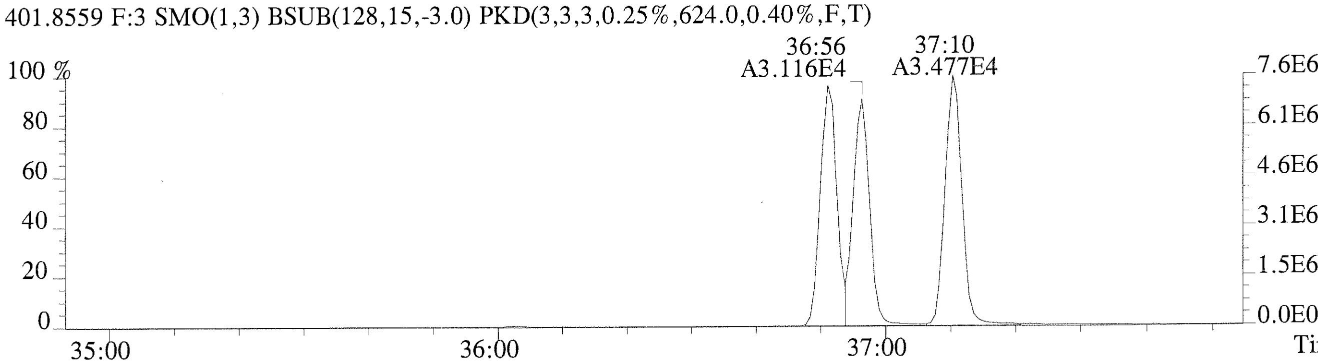
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



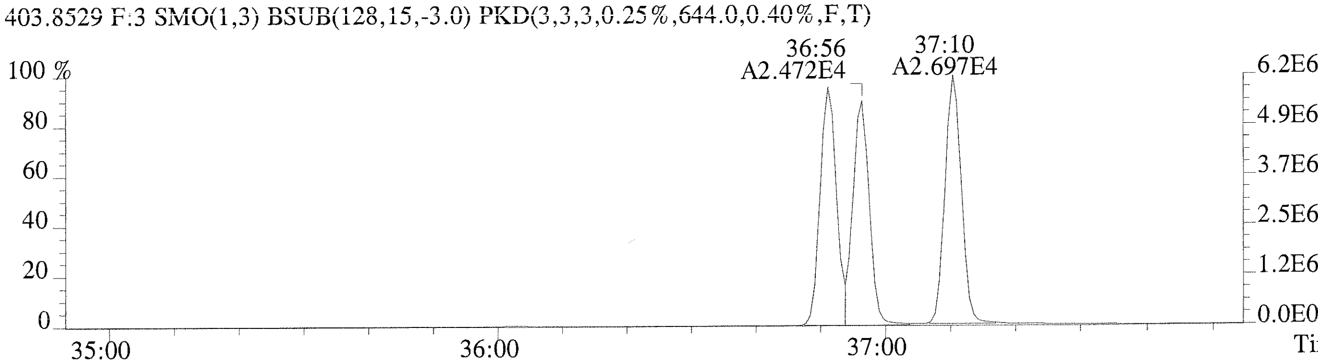
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



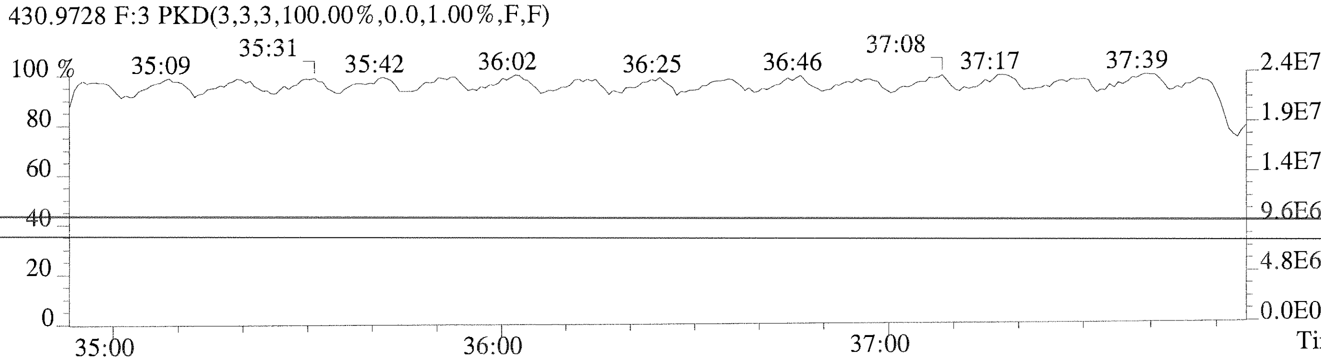
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)

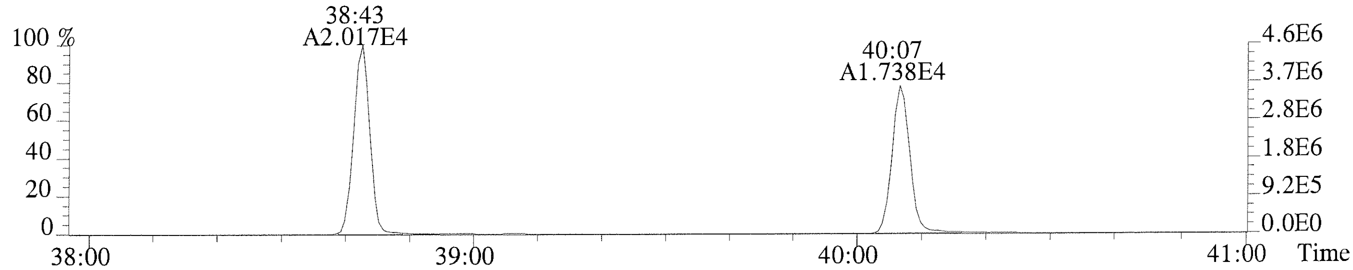


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

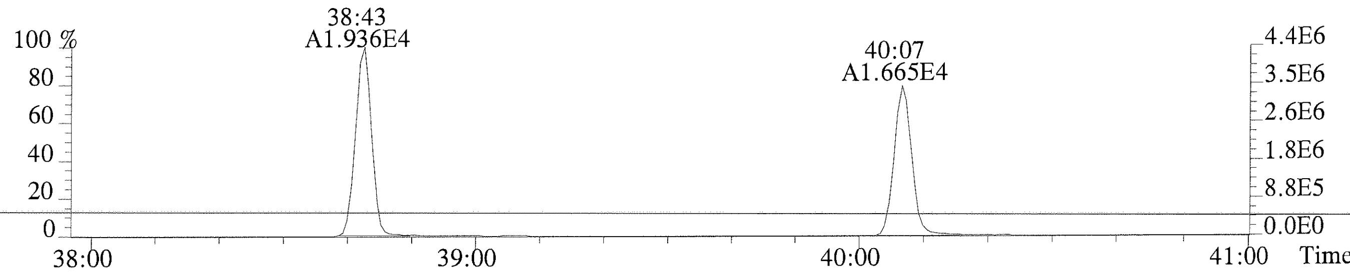


File:P174010 #1-278 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

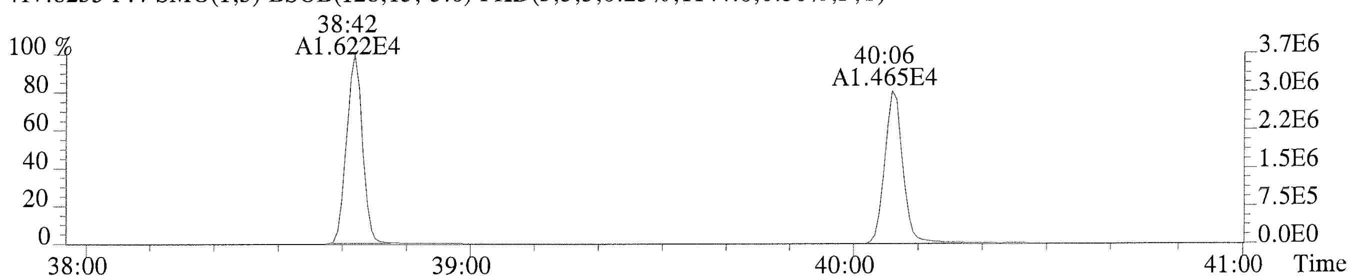
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.50%,F,T)



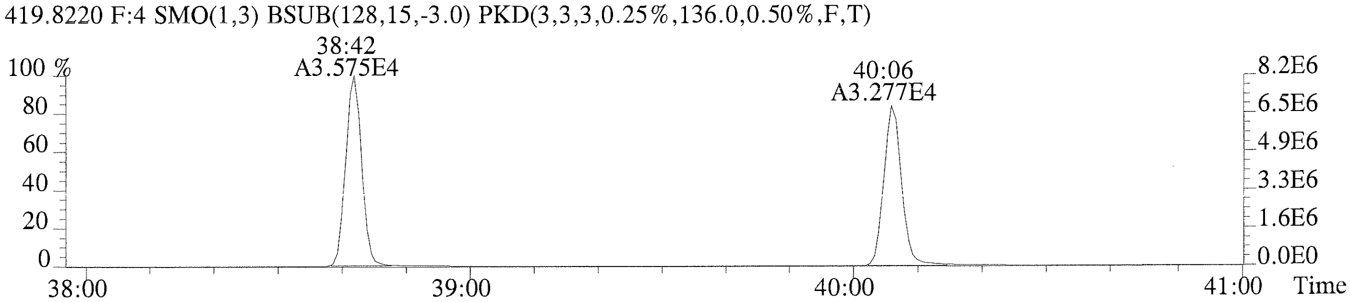
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.50%,F,T)



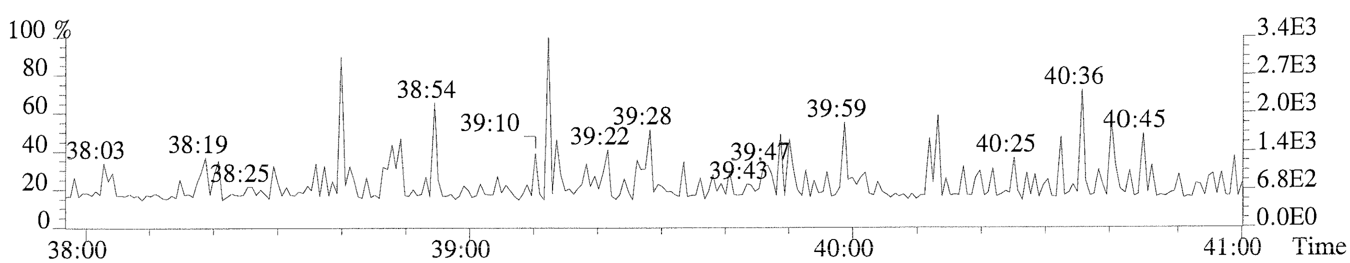
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.50%,F,T)



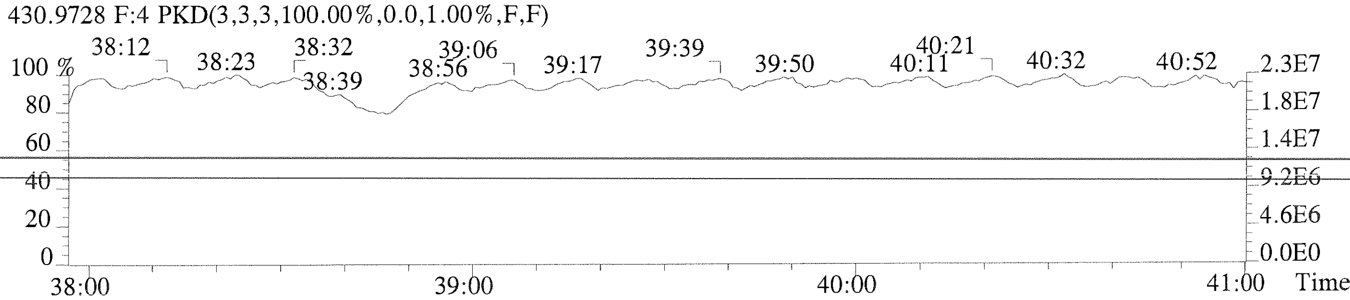
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.50%,F,T)



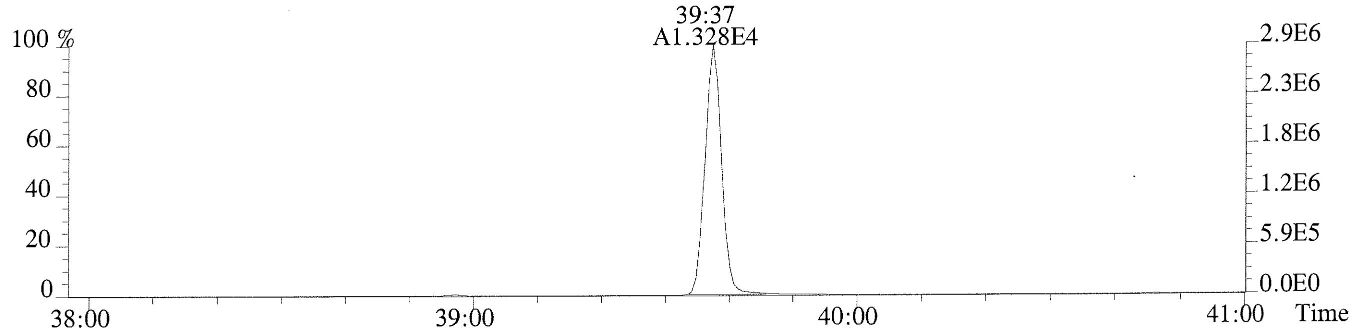
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



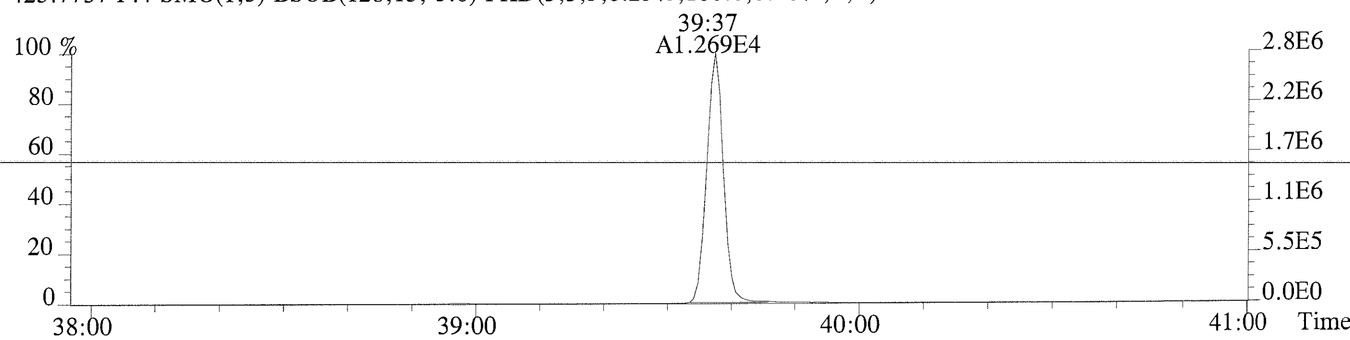
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



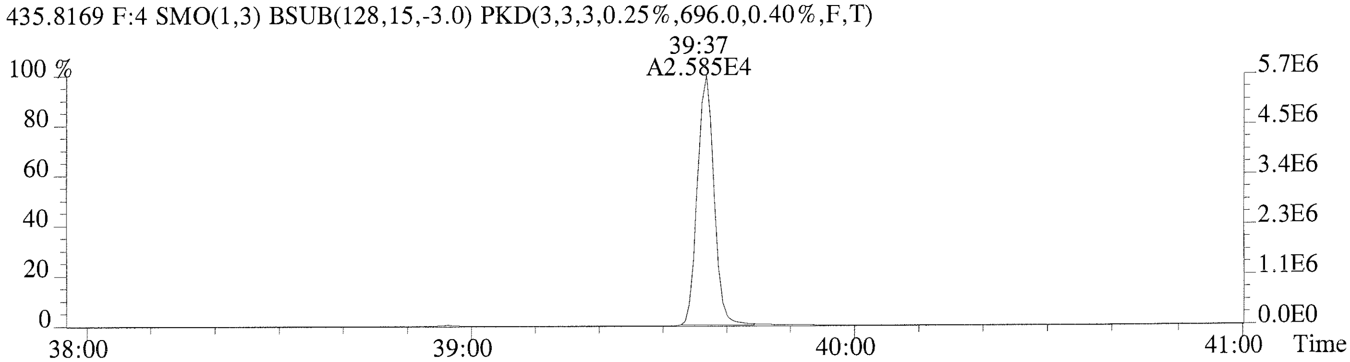
File:P174010 #1-278 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



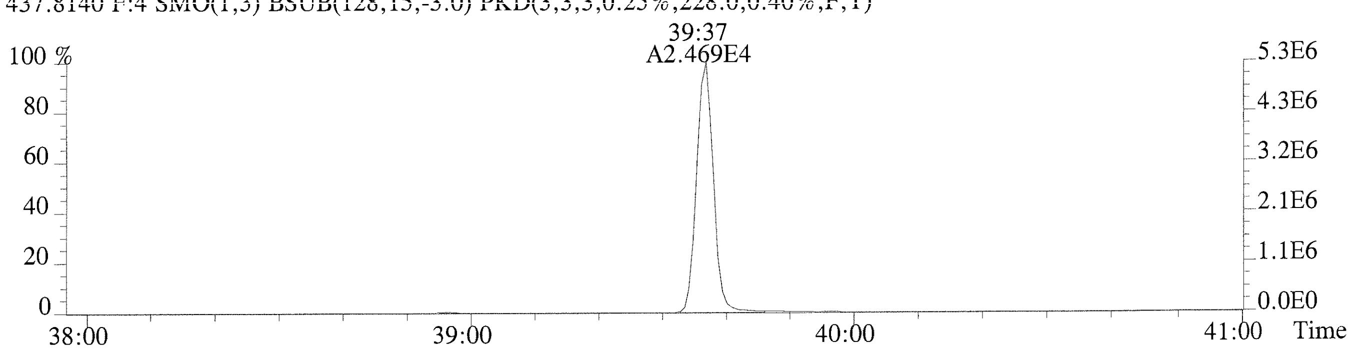
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



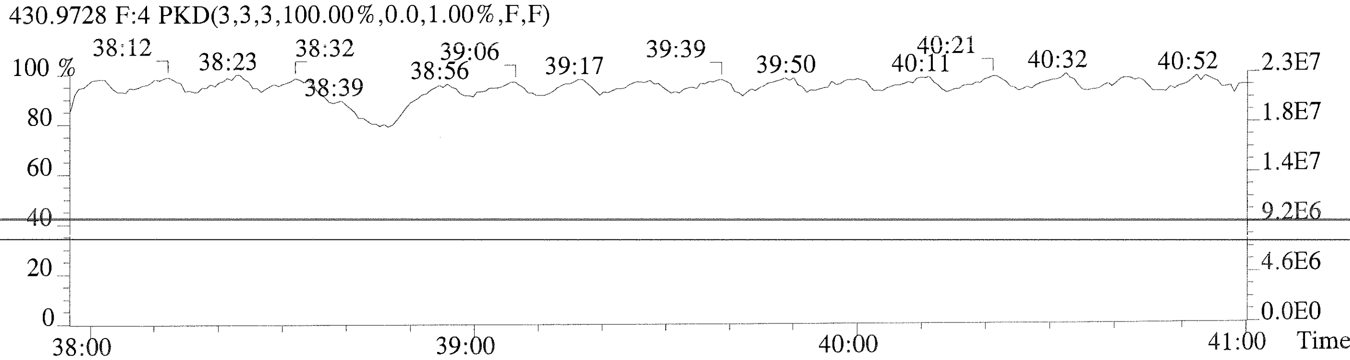
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



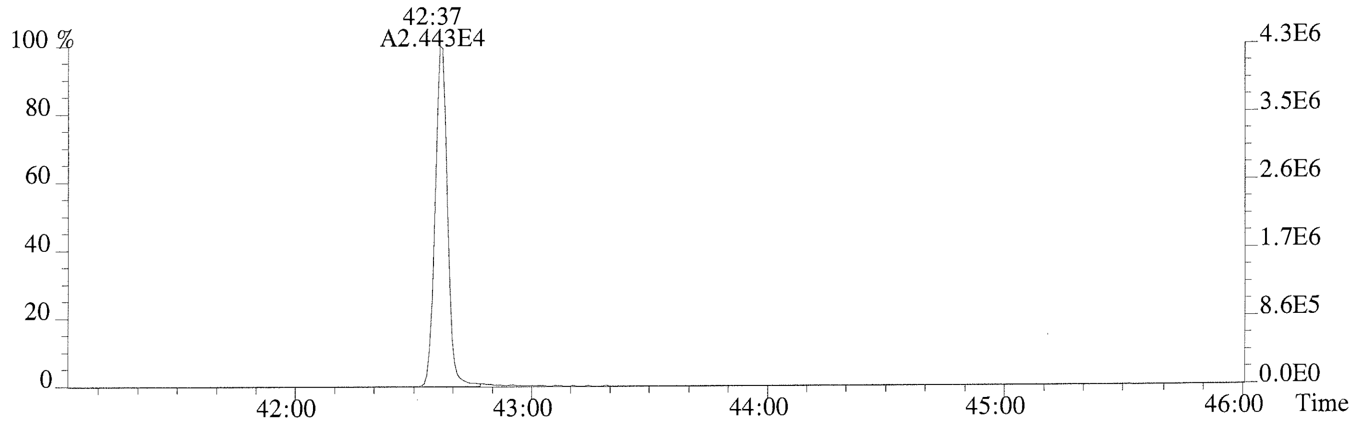
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



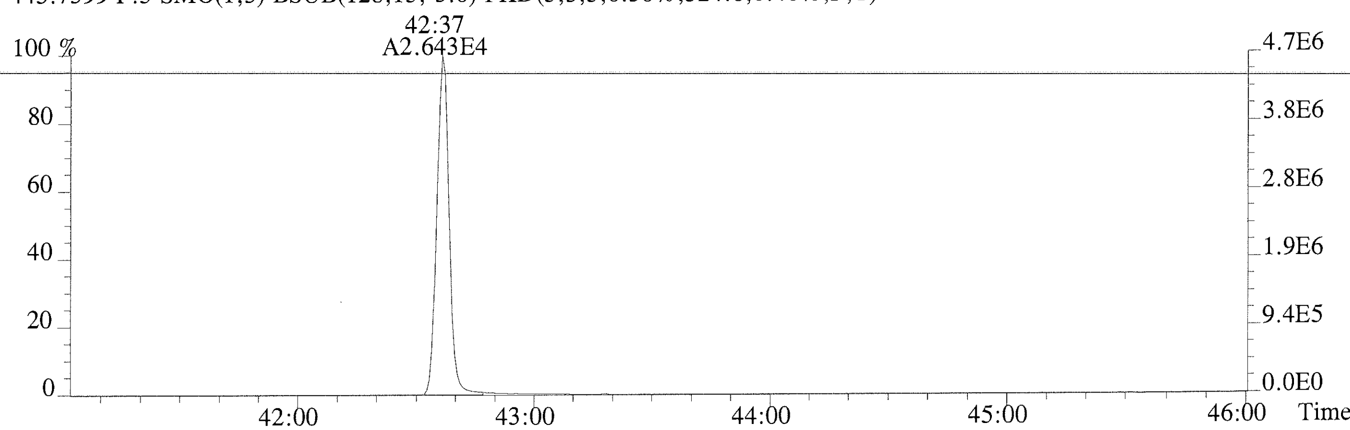
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



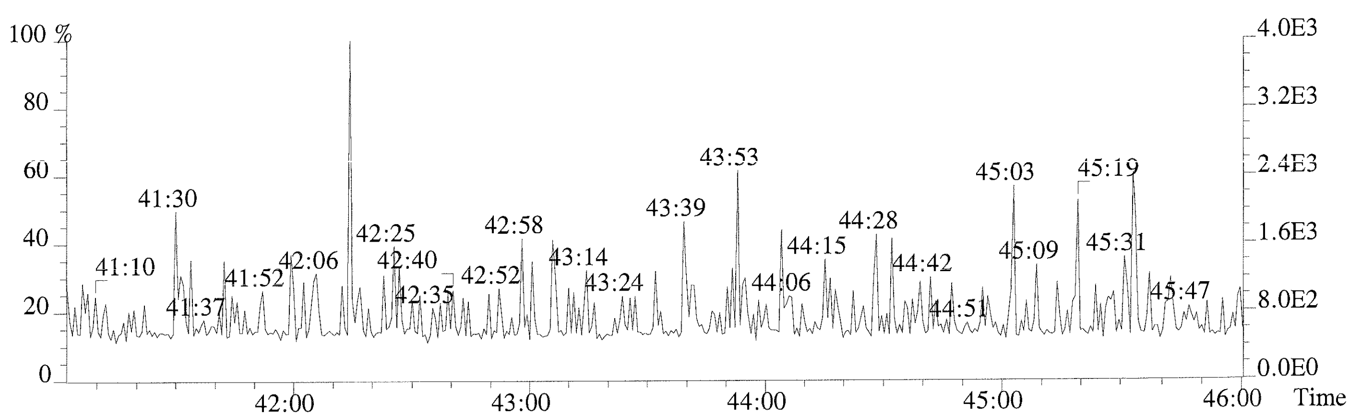
File:P174010 #1-457 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,64.0,0.40%,F,T)



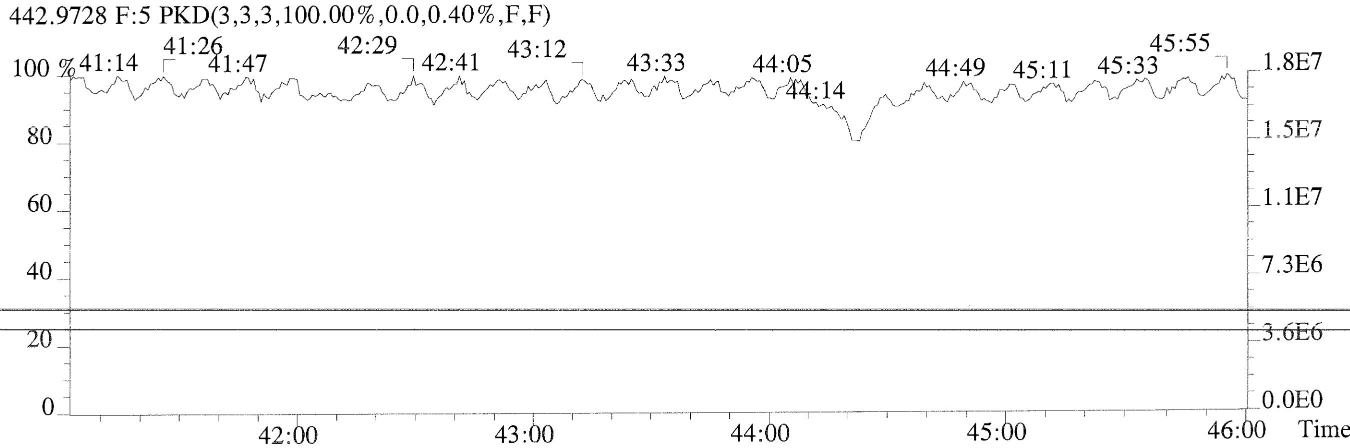
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



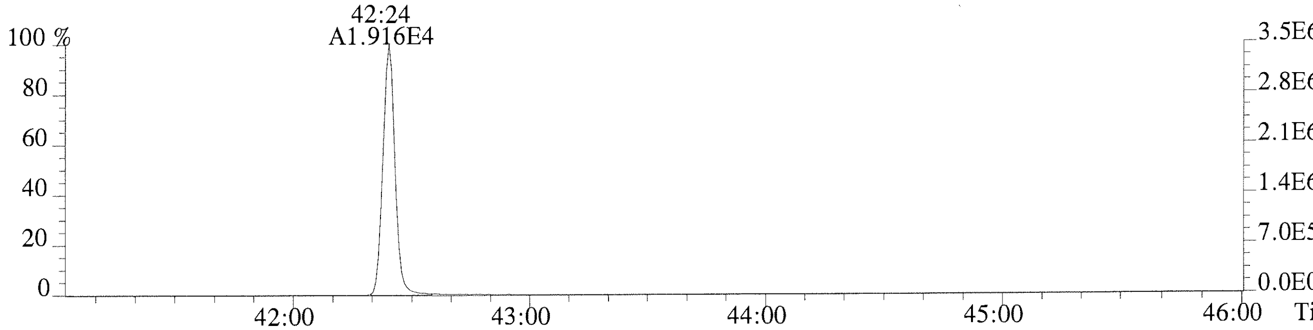
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



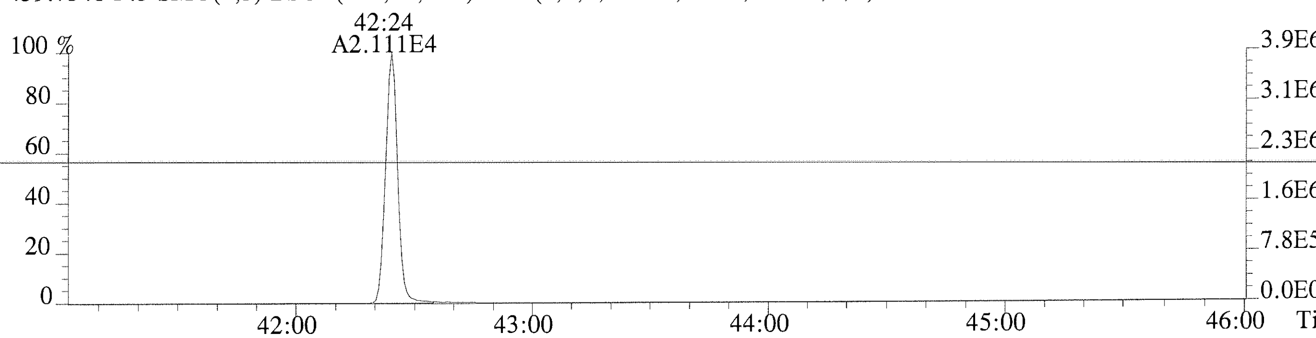
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



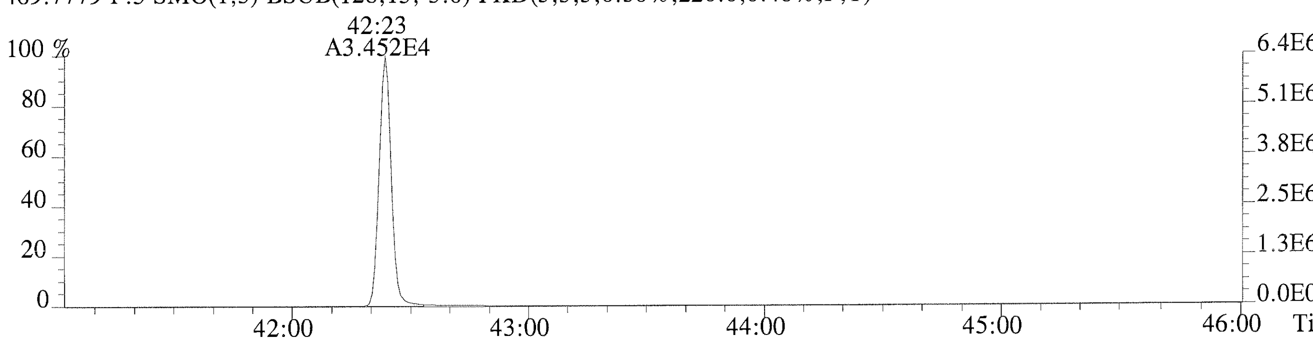
File:P174010 #1-457 Acq:10-OCT-2014 14:08:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



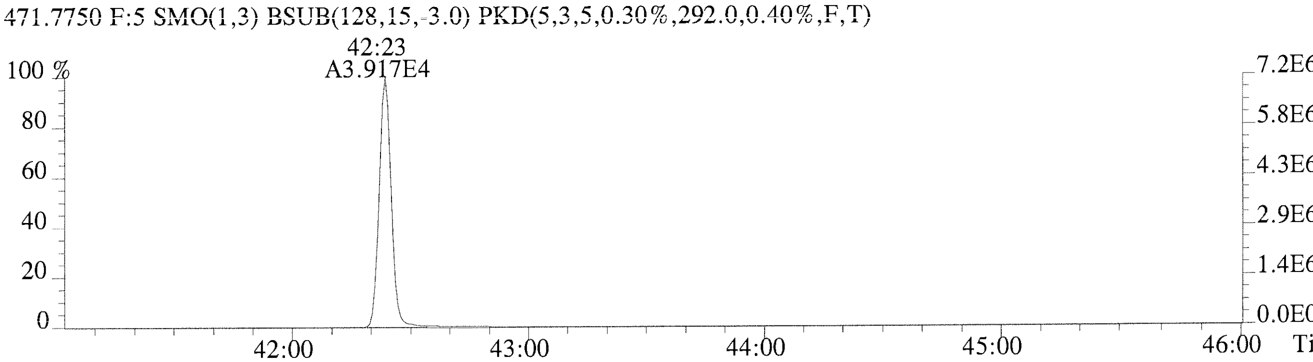
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



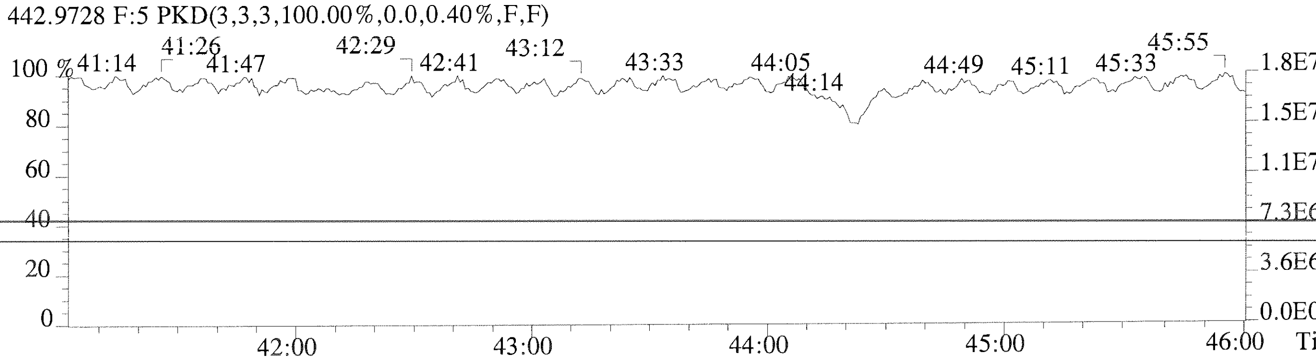
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P173831 – P173843

Circle one: Beginning / Ending

Date: 10/03/14 – 10/04/14

Method: 1613 / 1613E / 8290 / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC

Second QC: [signature]

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 03/25/14

Init. Calib.Times: 16:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P173832	3-OCT-14	23:03:23
72675	CS3	P173831	3-OCT-14	22:15:16
72675	CS3	P173843	4-OCT-14	07:52:42
METHOD BLANK	EQ1400597-01	P173833	3-OCT-14	23:51:31
AR02950	E1401181-001	P173834	4-OCT-14	00:39:37
DEL-FA-091814-003	T1401432-001	P173835	4-OCT-14	01:27:44
DEL-MIXEDBA-091814╗	T1401432-002	P173836	4-OCT-14	02:15:51
PIT-BA+3/8 82114-0╗	T1401389-001	P173837	4-OCT-14	03:03:59
PIT-BA-3/8 82114-0╗	T1401389-002	P173838	4-OCT-14	03:52:06
BP10LAA01-FL-1 MS	EQ1400606-03	P173839	4-OCT-14	04:40:15
BP10LAA01-FL-1 DMS	EQ1400606-04	P173840	4-OCT-14	05:28:21
LCS	EQ1400606-02	P173841	4-OCT-14	06:16:28

FORM V-HR CDD-3 DLM02.0(5/05)

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1141004.SPL

Last Modified: Saturday, October 04, 2014 11:23:46 Central Daylight Time

Printed: Saturday, October 04, 2014 11:24:04 Central Daylight Time

E1401160

D: \P173831 RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/03/14	22:15	P173831	CS3	72675	LL	HRMS check 11:45	8290cas
2		23:03	P173832	WINDOW DEFINE	63680			8290cas
3		23:51	P173833	EQ1400597-01	MB			8290cas
4	10/04/14	00:39	P173834	E1401181-001	E1401181-001			8290cas
5		01:27	P173835	T1401432-001	T1401432-001			8290cas
6		02:15	P173836	T1401432-002	T1401432-002			8290cas
7		03:03	P173837	T1401389-001	T1401389-001			8290cas
8		03:52	P173838	T1401389-002	T1401389-002			8290cas
9		04:40	P173839	EQ1400606-03	MS			8290cas
10		05:28	P173840	EQ1400606-04	DMS			8290cas
11		06:16	P173841	EQ1400606-02	LCS			8290cas
12		07:04	P173842	TEST	TEST			8290cas
13		07:52	P173843	CS3	72675		HRMS check 08:48	8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			8290cas
26			---	---	---			8290cas
27			---	---	---			8290cas
28			---	---	---			8290cas
29			---	---	---			8290cas
30	---	---	---	---	---	---	---	8290cas
31	---	---	---	---	---	---	---	8290cas
32	---	---	---	---	---	---	---	8290cas
33	---	---	---	---	---	---	---	8290cas
34	---	---	---	---	---	---	---	8290cas
35	---	---	---	---	---	---	---	---
36	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	---
39	---	---	---	---		---	---	---

Reviewed By: JC

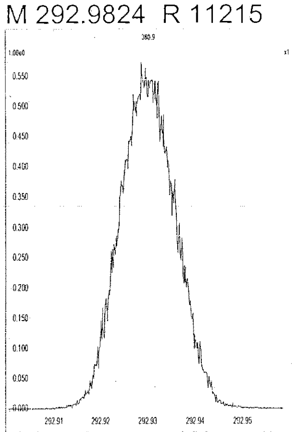
10/06/14

071

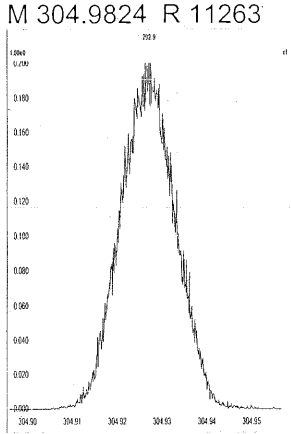
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, October 03, 2014 11:45:58 Central Daylight Time

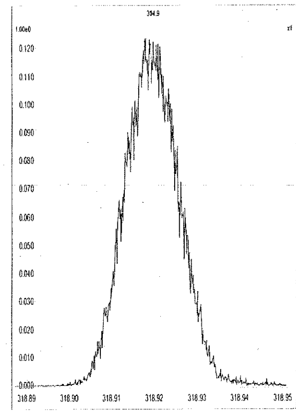
M 292.9824 R 11215



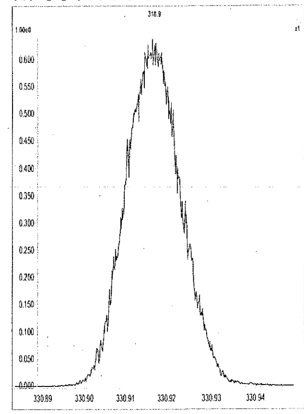
M 304.9824 R 11263



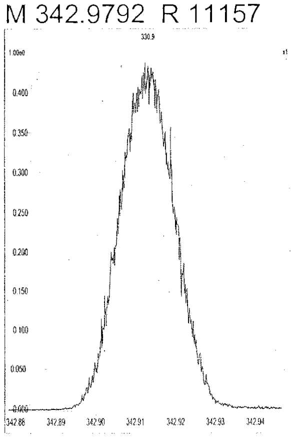
M 318.9792 R 10965



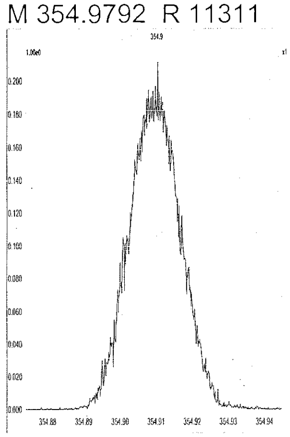
M 330.9792 R 11315



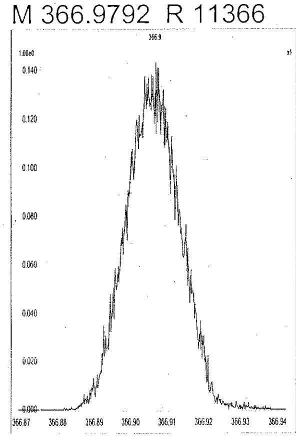
M 342.9792 R 11157



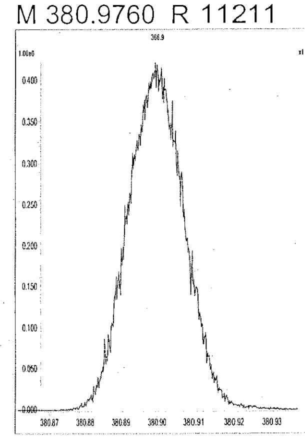
M 354.9792 R 11311



M 366.9792 R 11366



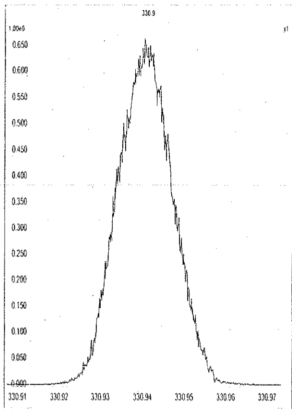
M 380.9760 R 11211



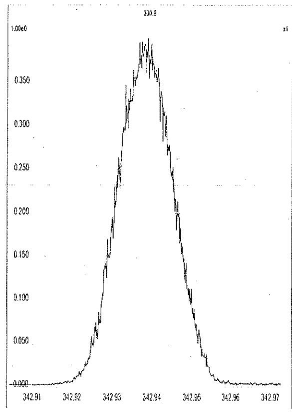
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, October 03, 2014 11:47:28 Central Daylight Time

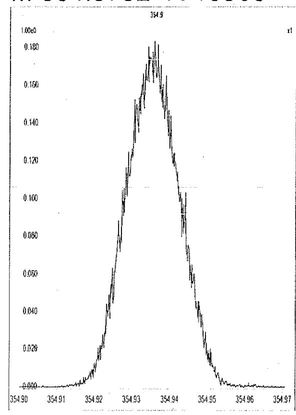
M 330.9792 R 11215



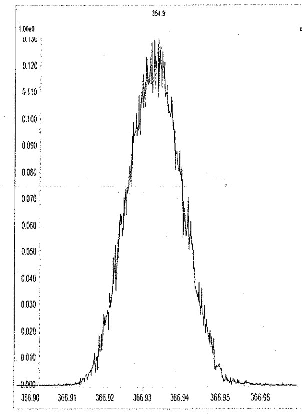
M 342.9792 R 10867



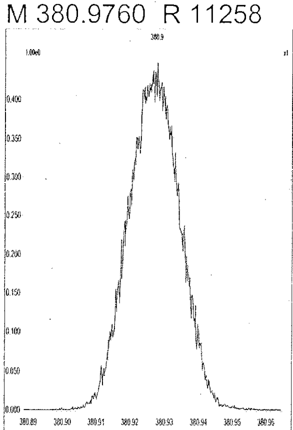
M 354.9792 R 10965



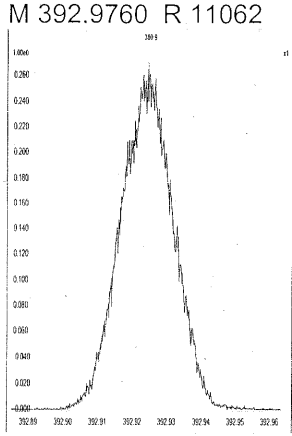
M 366.9792 R 11740



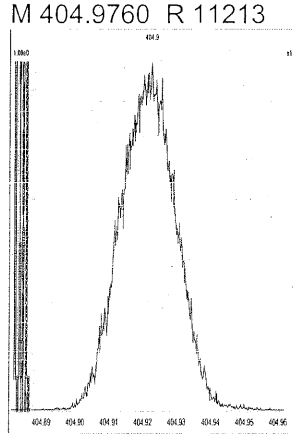
M 380.9760 R 11258



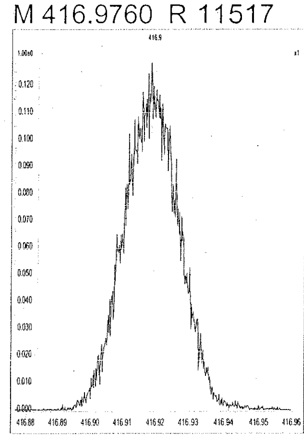
M 392.9760 R 11062



M 404.9760 R 11213



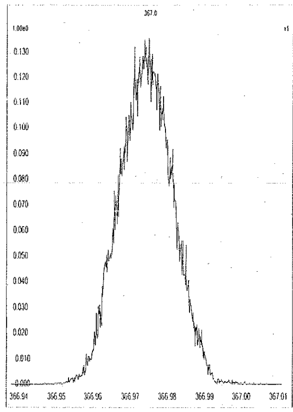
M 416.9760 R 11517



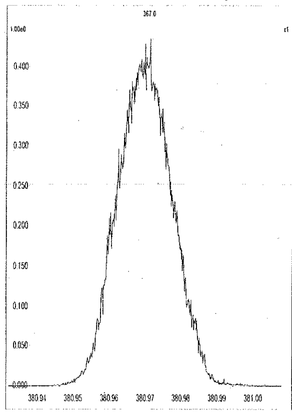
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, October 03, 2014 11:48:46 Central Daylight Time

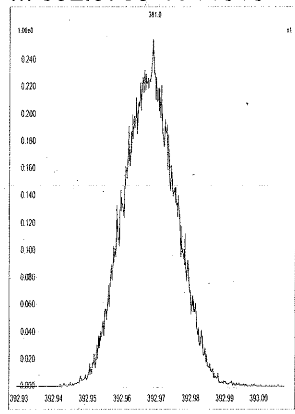
M 366.9792 R 11160



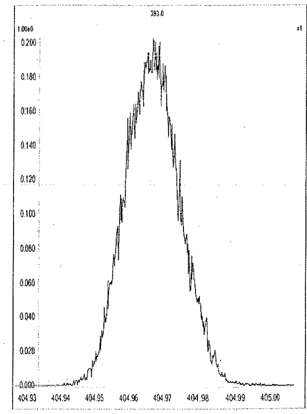
M 380.9760 R 11362



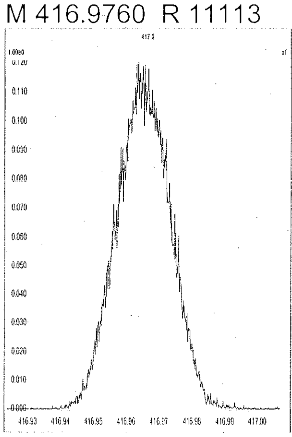
M 392.9760 R 11313



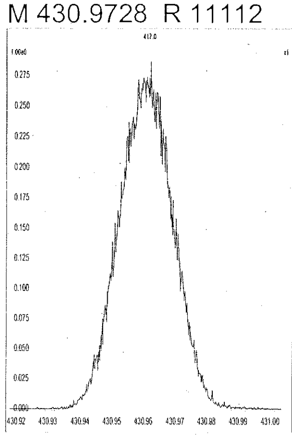
M 404.9760 R 11160



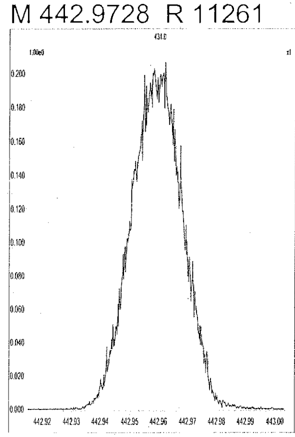
M 416.9760 R 11113



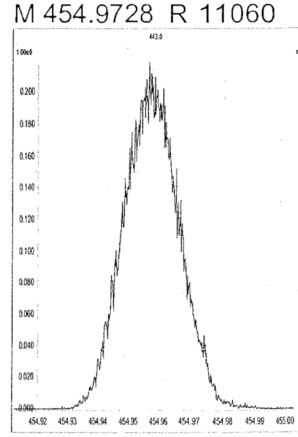
M 430.9728 R 11112



M 442.9728 R 11261



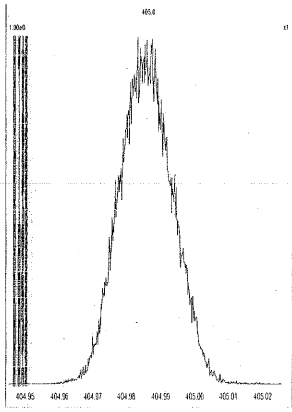
M 454.9728 R 11060



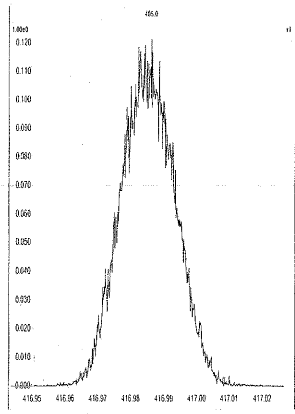
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, October 03, 2014 11:50:07 Central Daylight Time

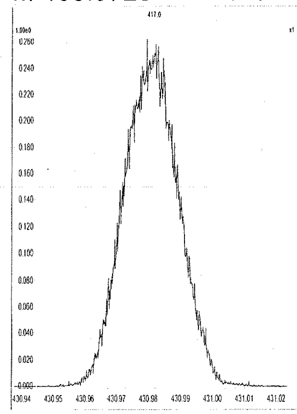
M 404.9760 R 11261



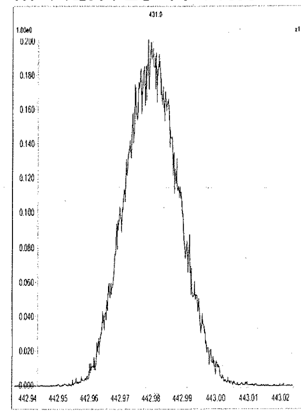
M 416.9760 R 10916



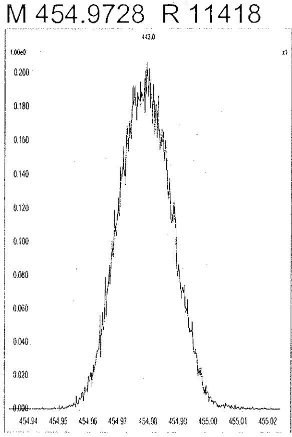
M 430.9728 R 11469



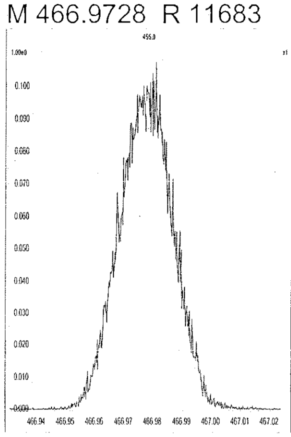
M 442.9728 R 11261



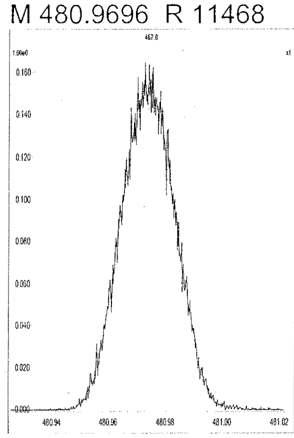
M 454.9728 R 11418



M 466.9728 R 11683



M 480.9696 R 11468



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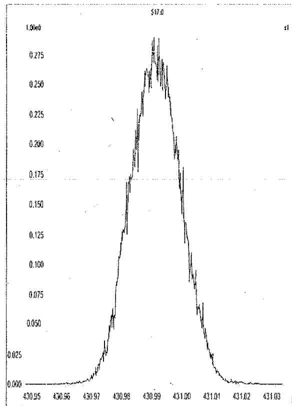
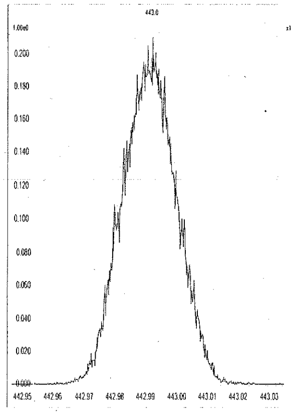
Printed: Friday, October 03, 2014 11:51:51 Central Daylight Time

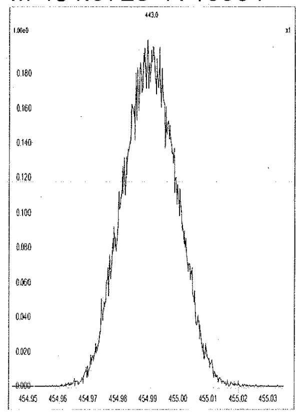
M 430.9728 R 11212



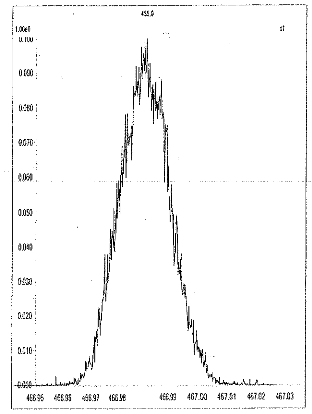
M 442.9728 R 11211



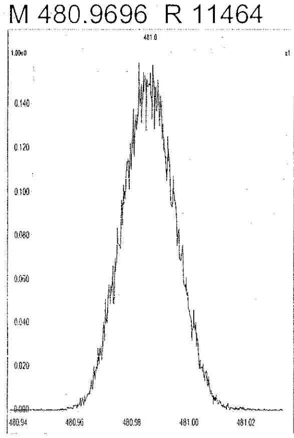
M 454.9728 R 10964



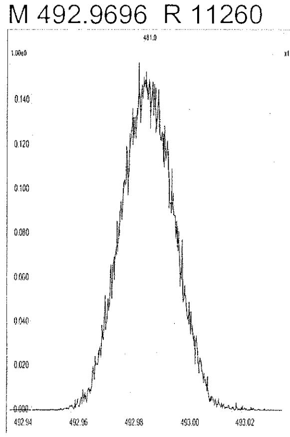
M 466.9728 R 11629



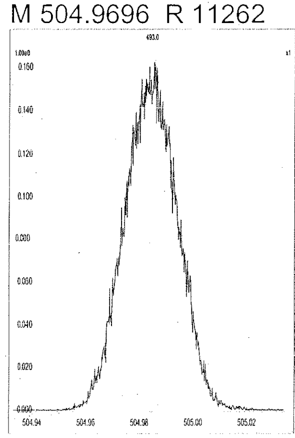
M 480.9696 R 11464



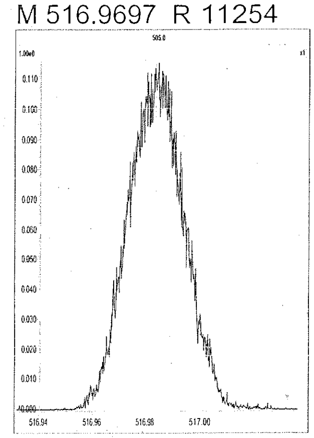
M 492.9696 R 11260



M 504.9696 R 11262



M 516.9697 R 11254



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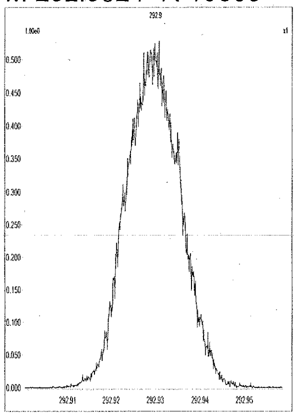
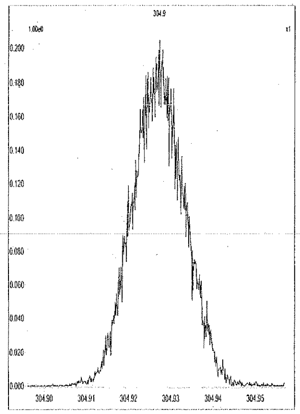
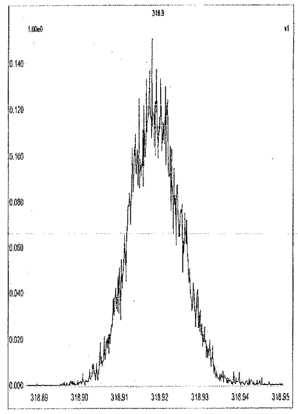
M 292.9824 R 10869



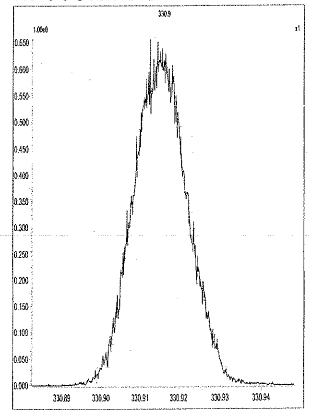
M 304.9824 R 11012



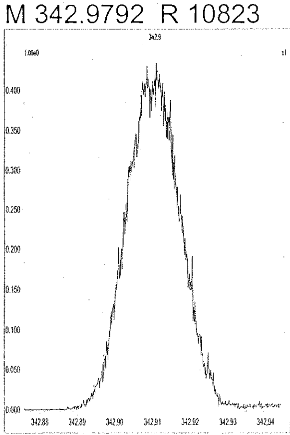
M 318.9792 R 11365



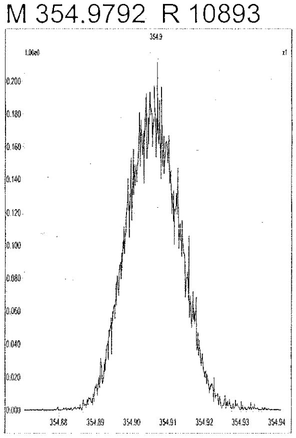
M 330.9792 R 10776



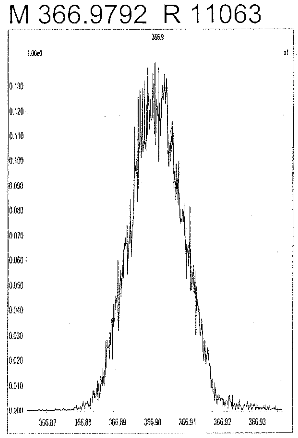
M 342.9792 R 10823



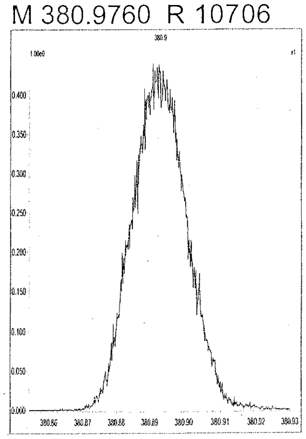
M 354.9792 R 10893



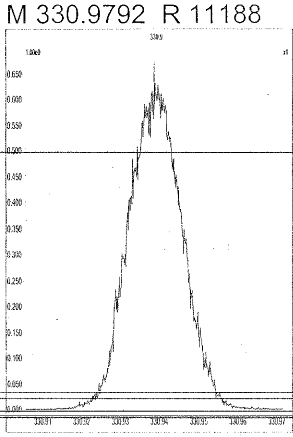
M 366.9792 R 11063



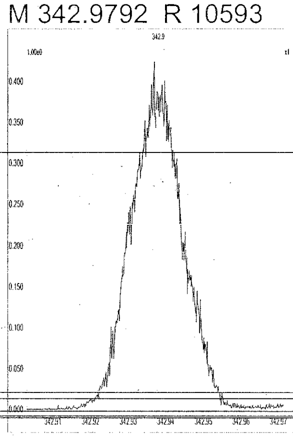
M 380.9760 R 10706



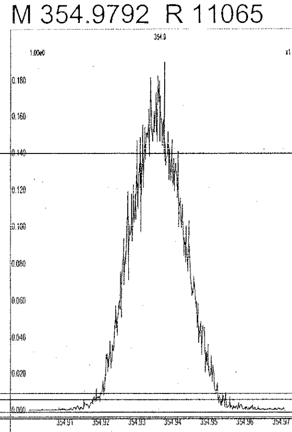
M 330.9792 R 11188



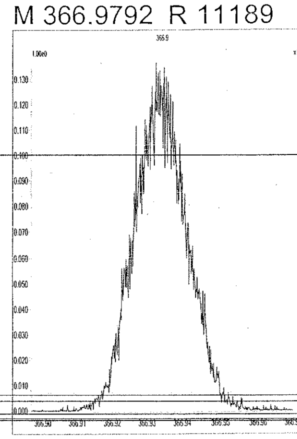
M 342.9792 R 10593



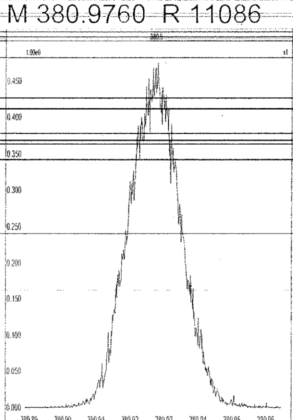
M 354.9792 R 11065



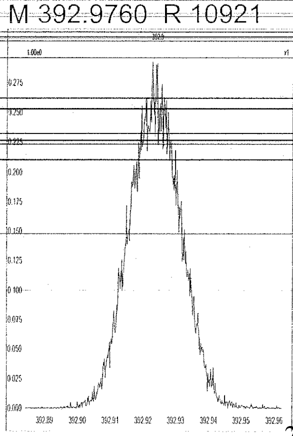
M 366.9792 R 11189



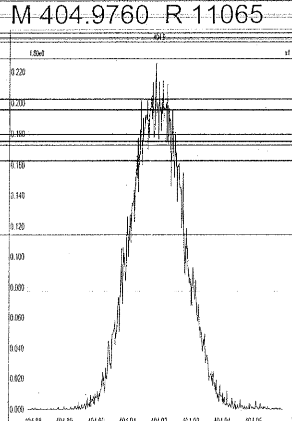
M 380.9760 R 11086



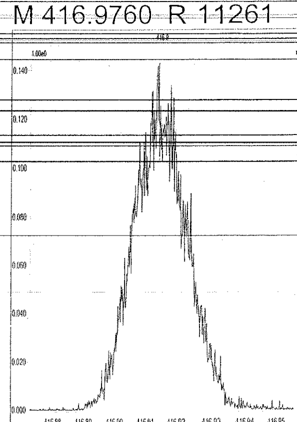
M 392.9760 R 10921



M 404.9760 R 11065



M 416.9760 R 11261



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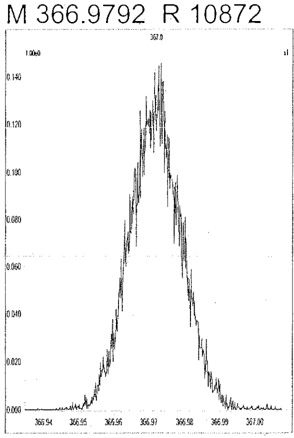
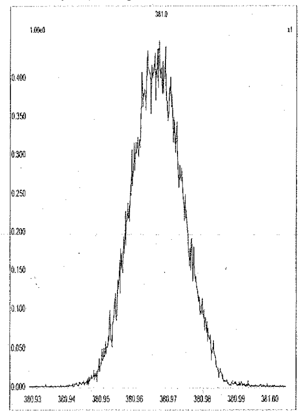
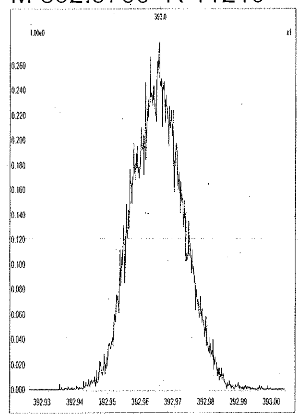
M 366.9792 R 10872



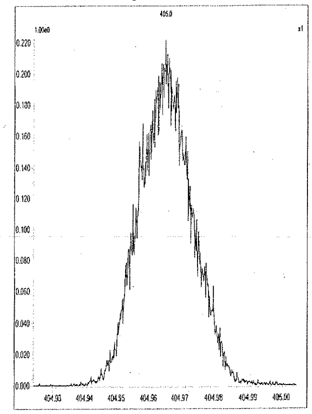
M 380.9760 R 10967



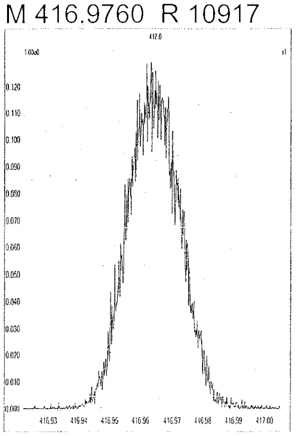
M 392.9760 R 11210



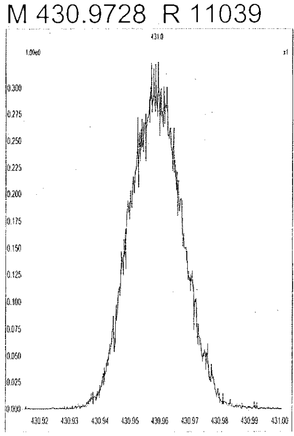
M 404.9760 R 11166



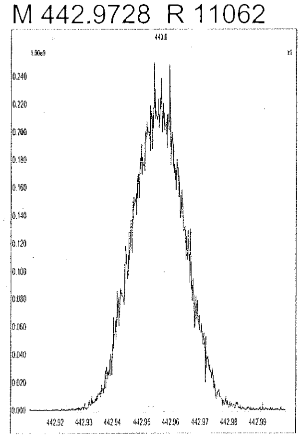
M 416.9760 R 10917



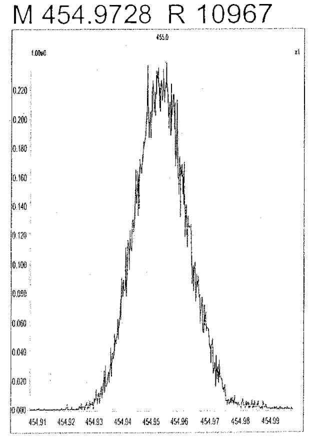
M 430.9728 R 11039



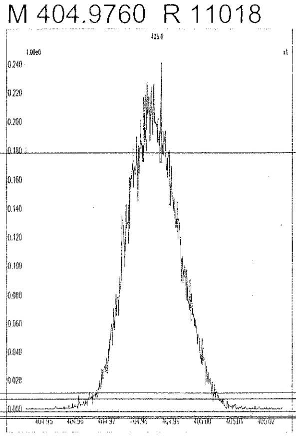
M 442.9728 R 11062



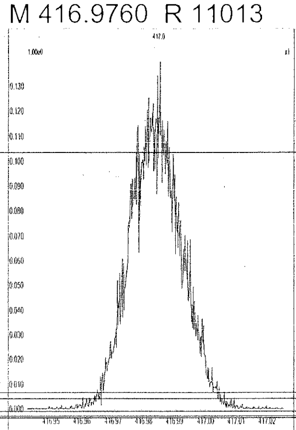
M 454.9728 R 10967



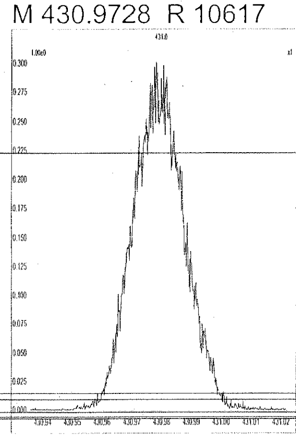
M 404.9760 R 11018



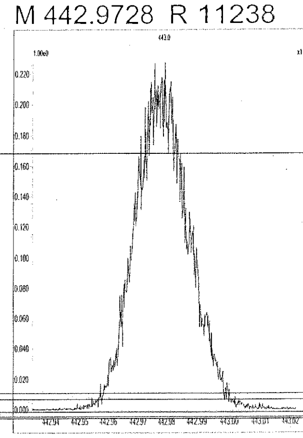
M 416.9760 R 11013



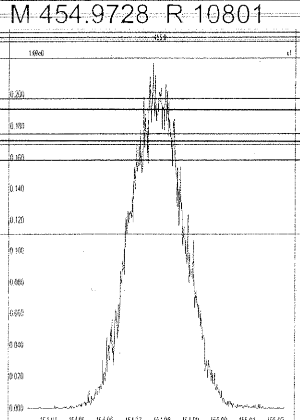
M 430.9728 R 10617



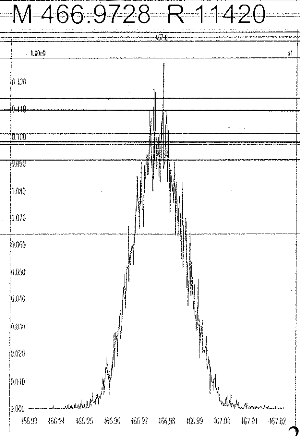
M 442.9728 R 11238



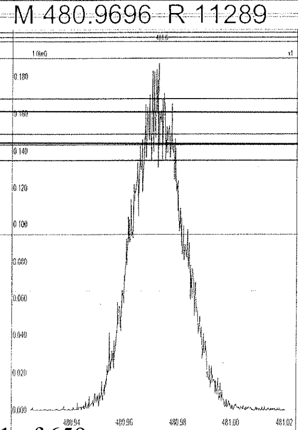
M 454.9728 R 10801



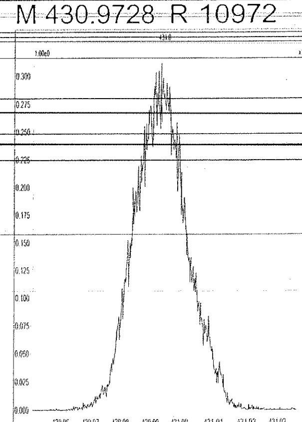
M 466.9728 R 11420



M 480.9696 R 11289

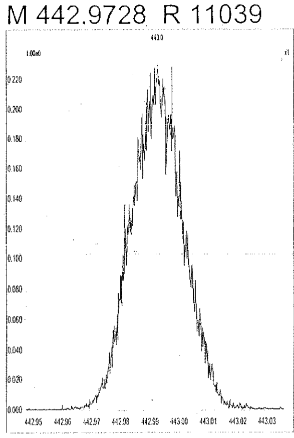


M 430.9728 R 10972

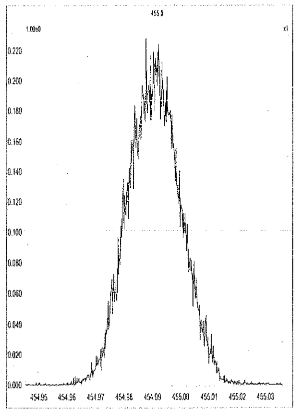


Printed: Saturday, October 04, 2014 08:48:57 Central Daylight Time

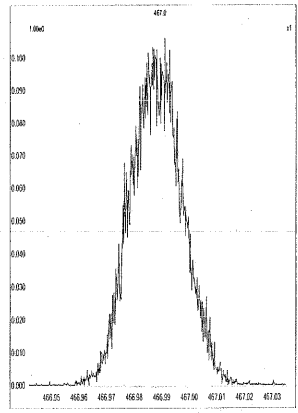
M 442.9728 R 11039



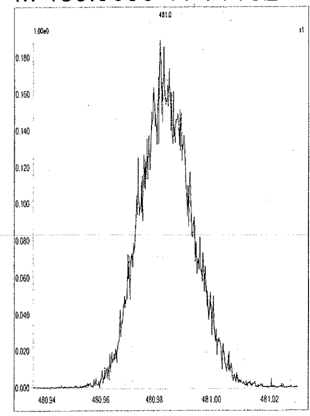
M 454.9728 R 11261



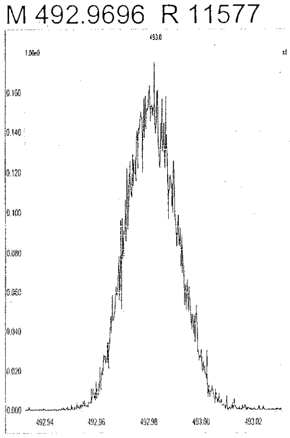
M 466.9728 R 11142



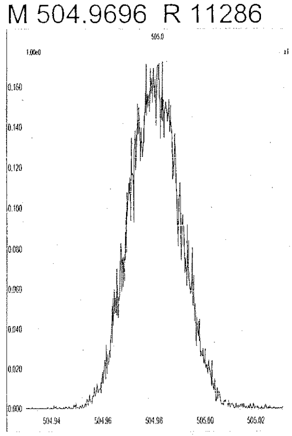
M 480.9696 R 11162



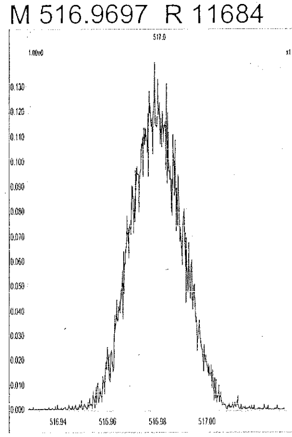
M 492.9696 R 11577



M 504.9696 R 11286



M 516.9697 R 11684



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

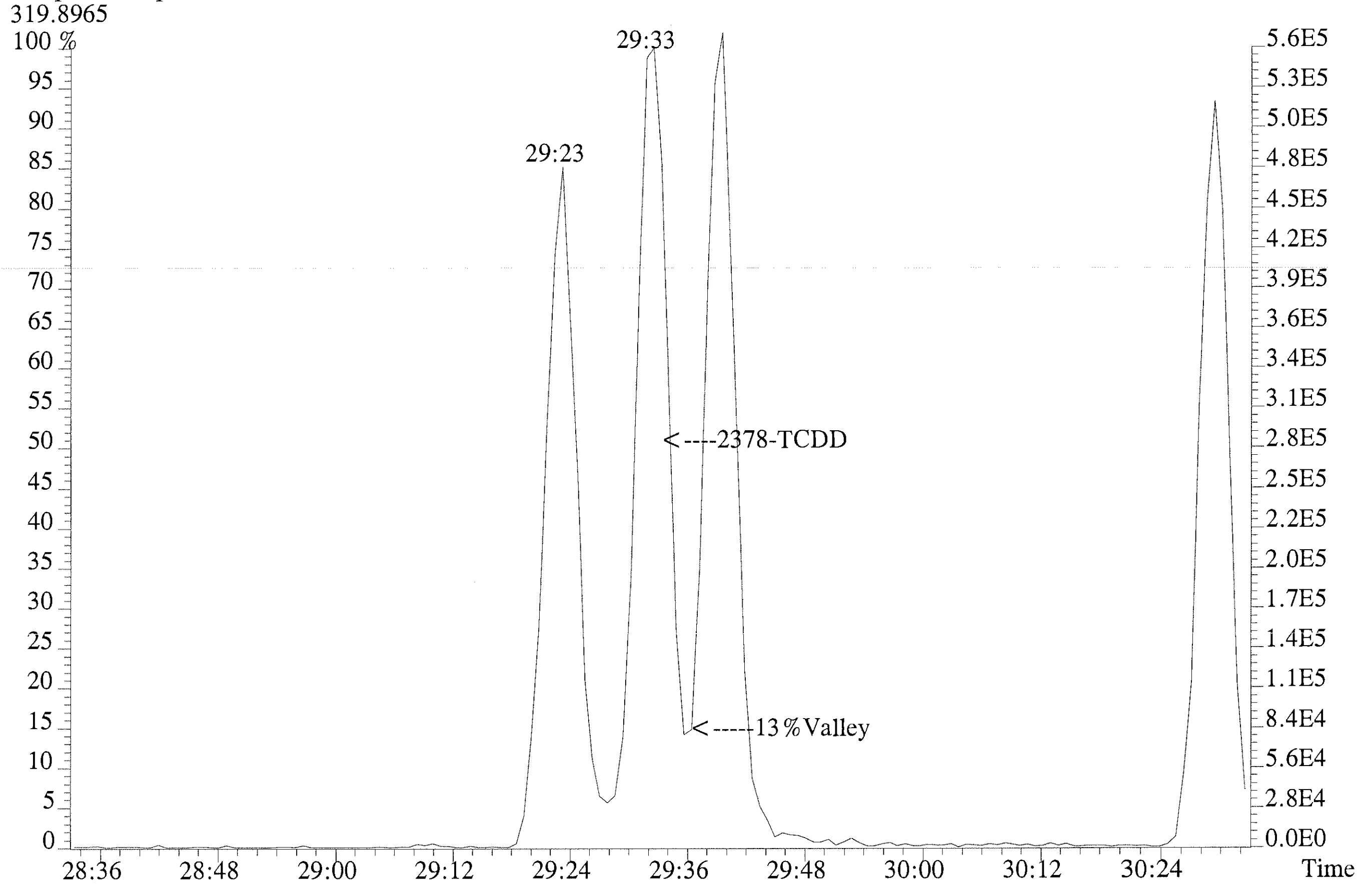
WDM

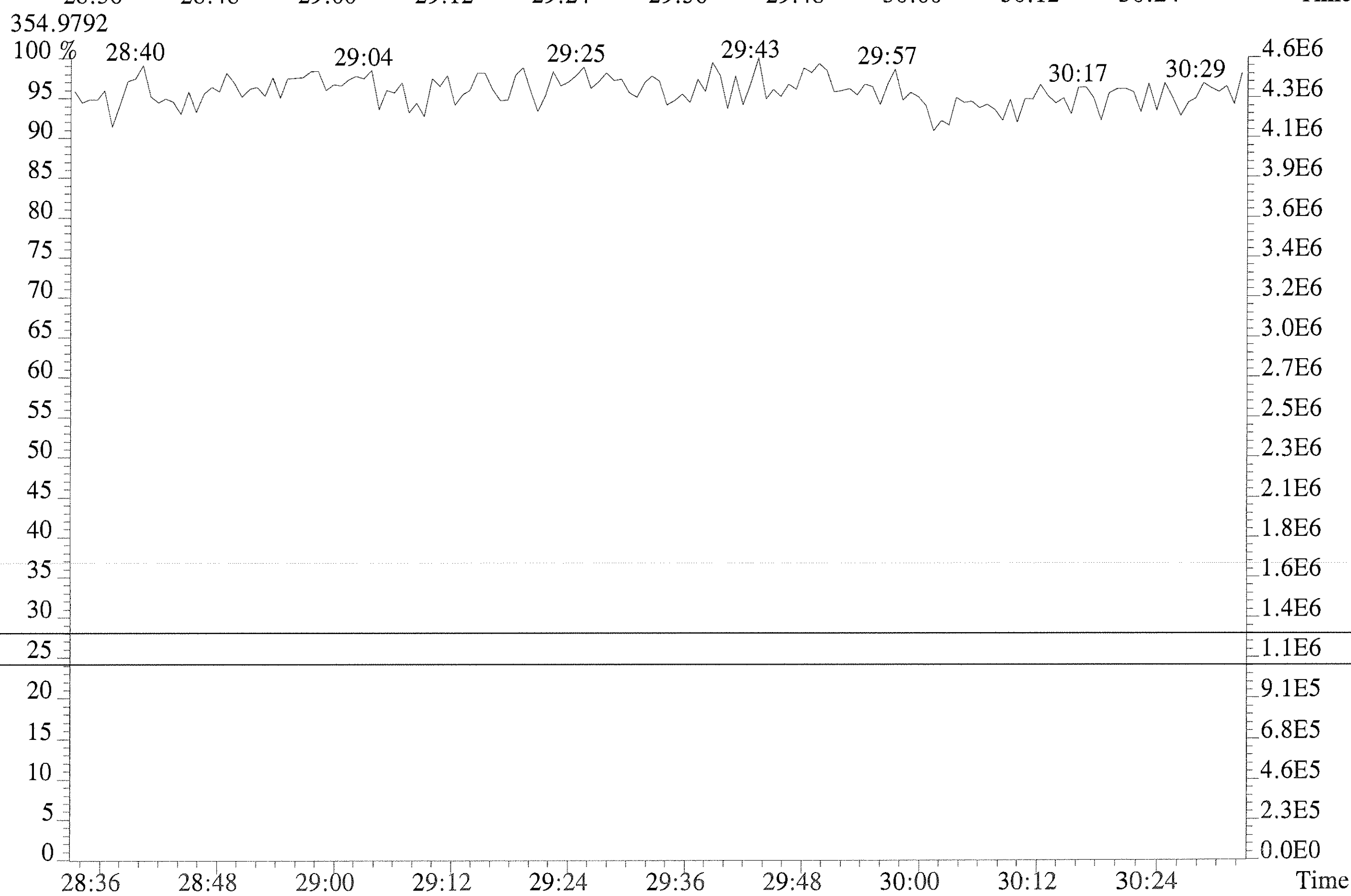
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ____________ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P173832
Date Analyzed: 3-OCT-2014
Time Analyzed: 23:03:23

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:36	30:39
TCDD	26:27	30:29
PeCDF	30:35	34:41
PeCDD	32:02	34:26
HxCDF	35:19	37:45
HxCDD	35:48	37:21
HpCDF	38:57	40:23
HpCDD	39:12	39:53

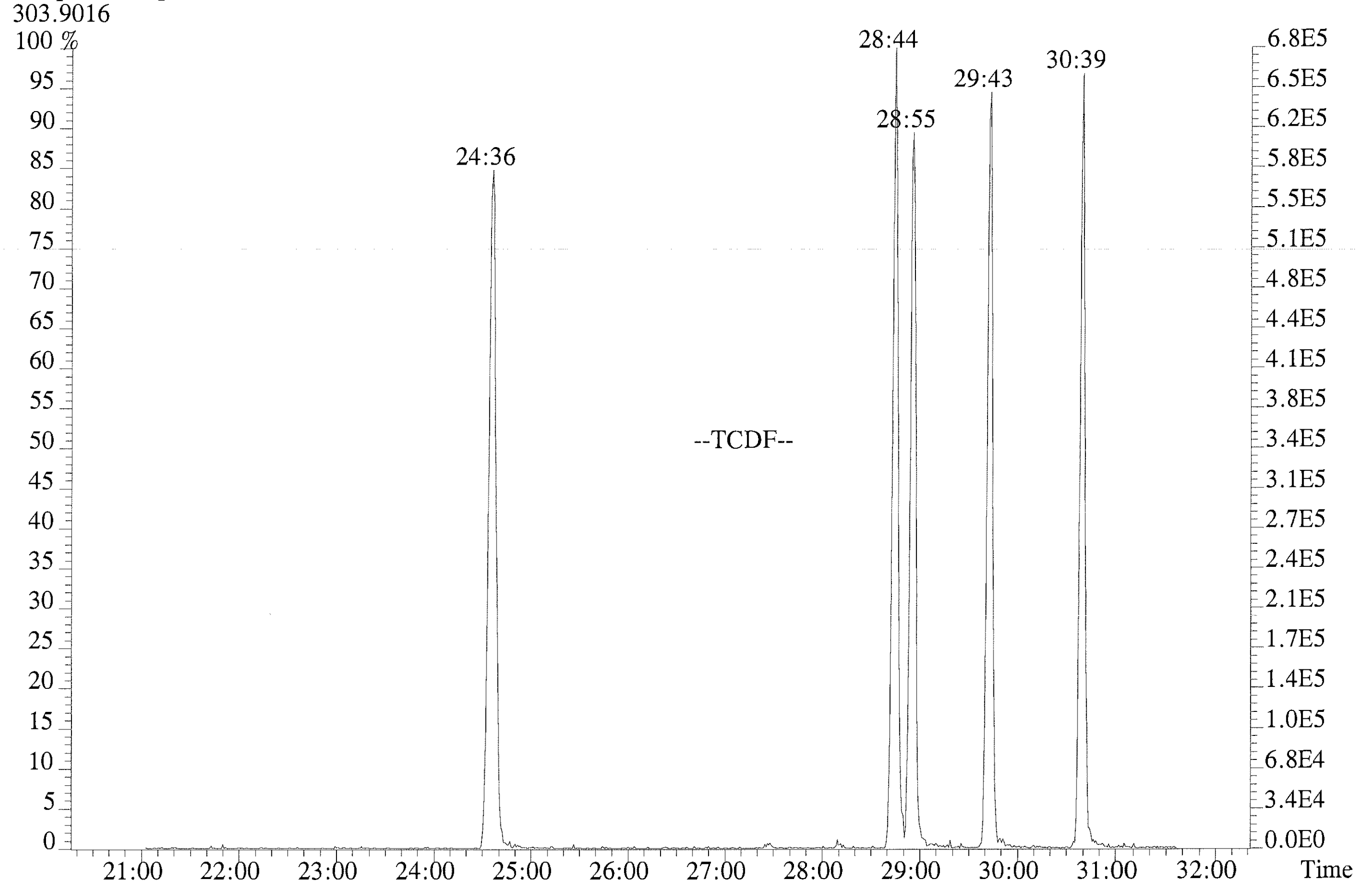
% Valley 2378-TCDD: 13 %

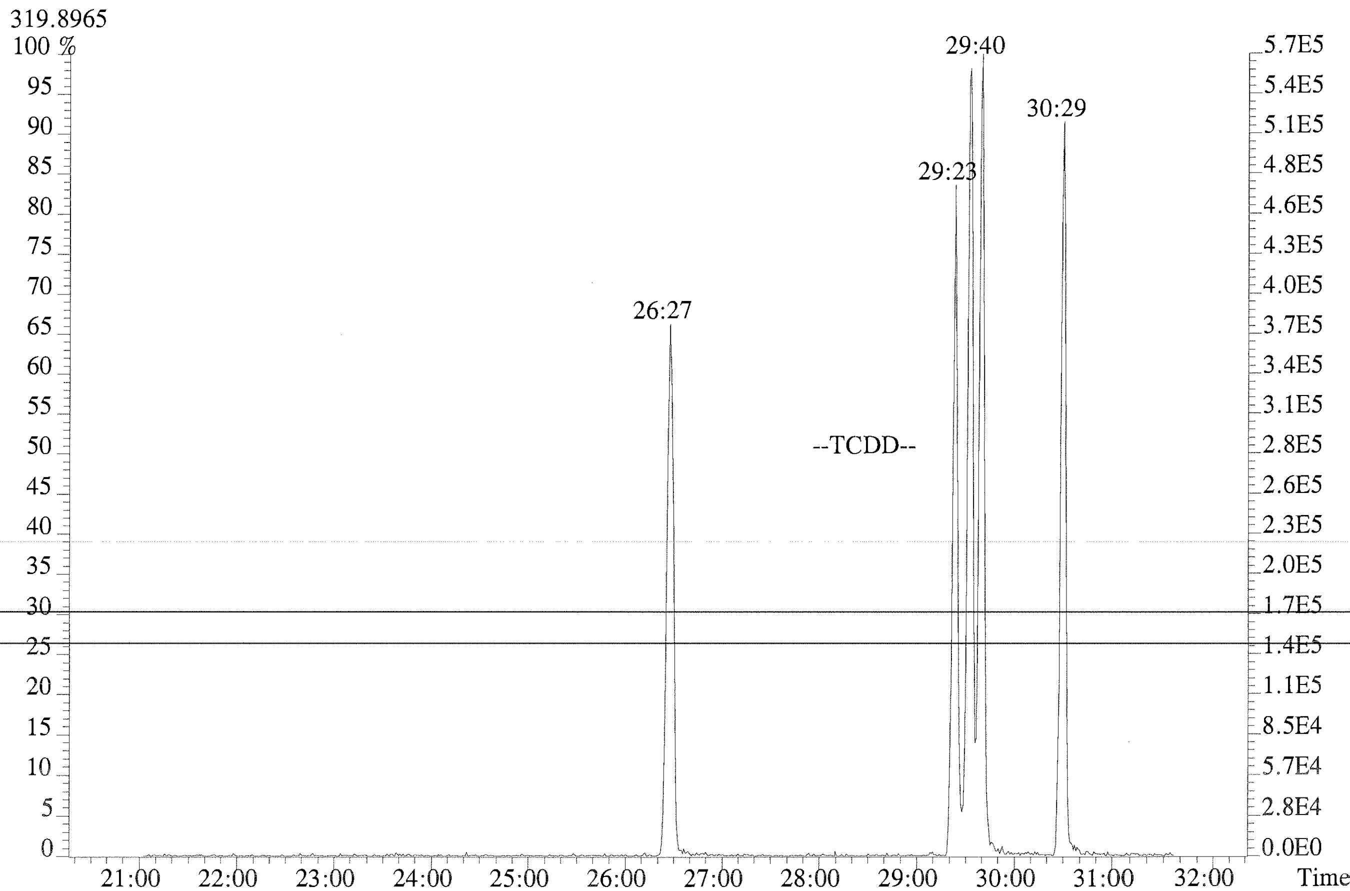
File:P173832 #1-815 Acq: 3-OCT-2014 23:03:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



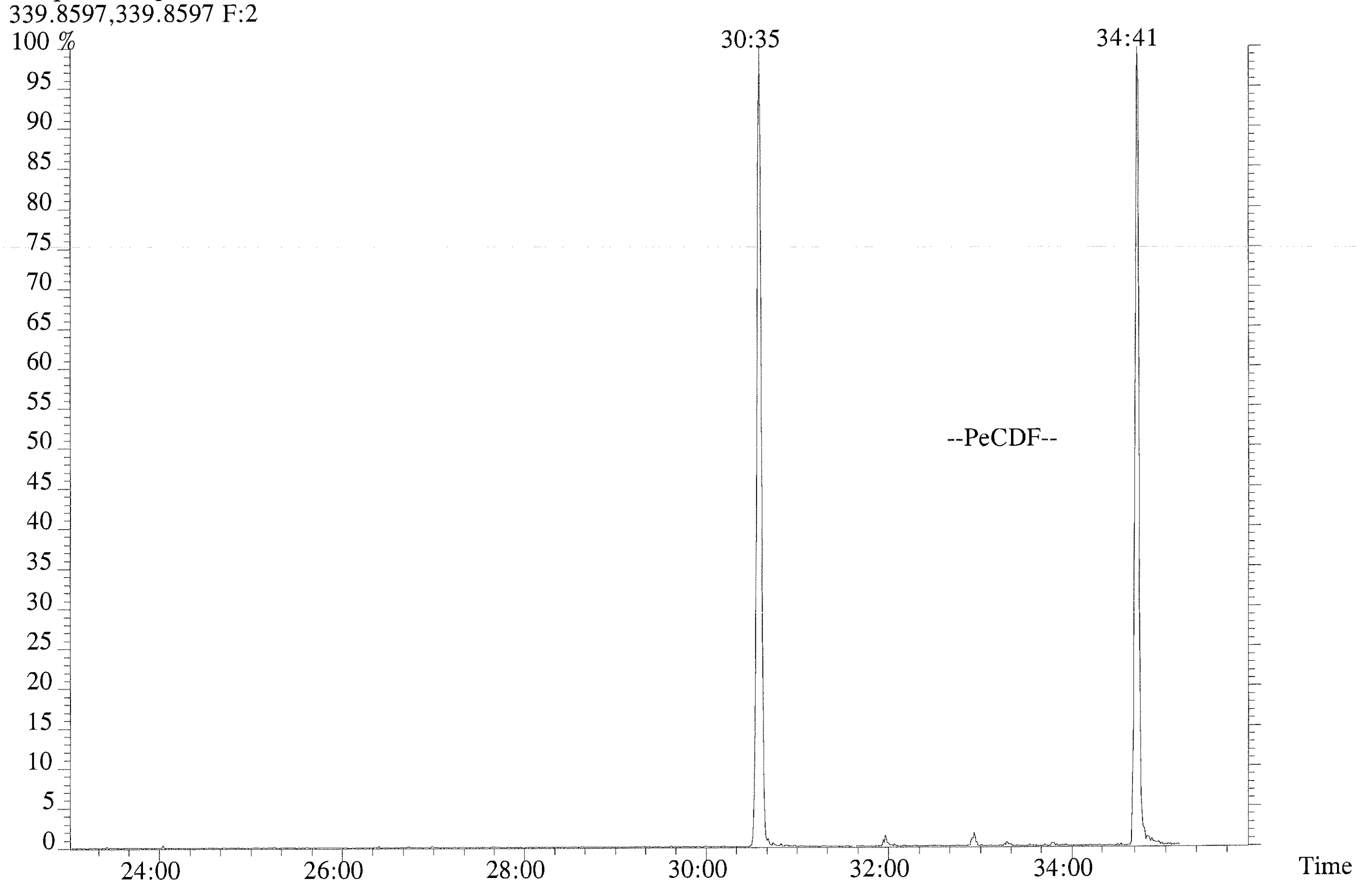


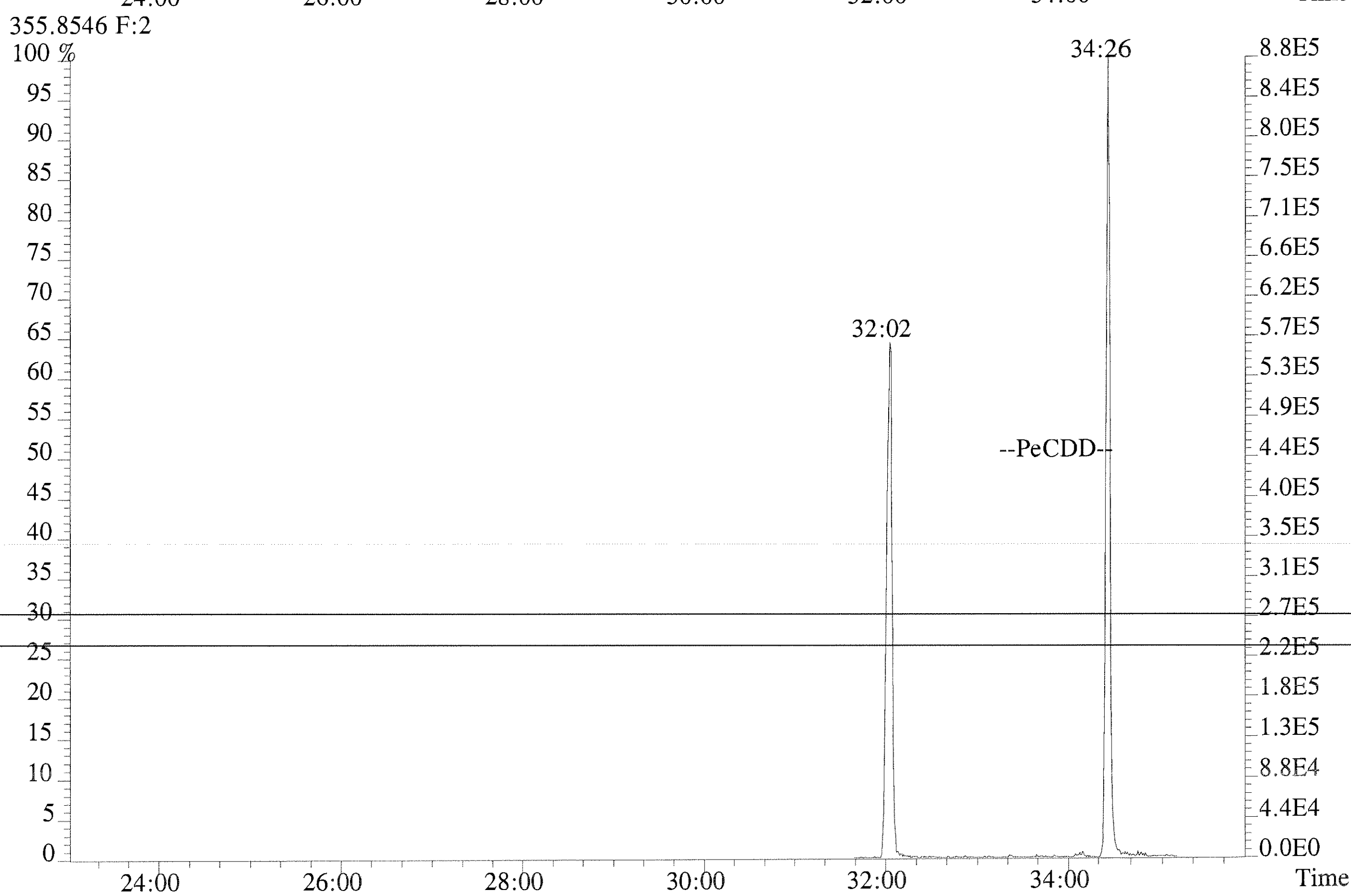
File:P173832 #1-815 Acq: 3-OCT-2014 23:03:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P173832 #1-815 Acq: 3-OCT-2014 23:03:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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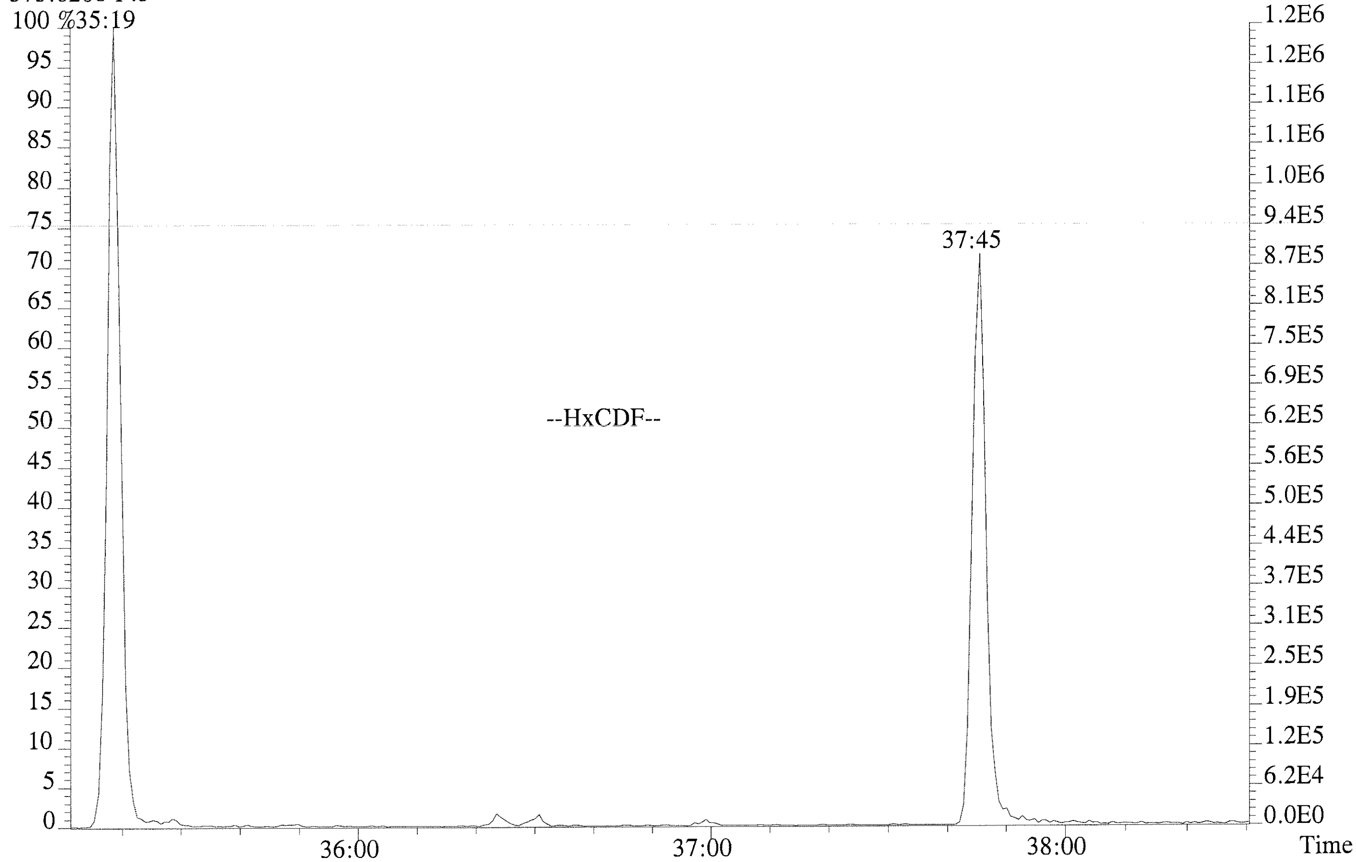
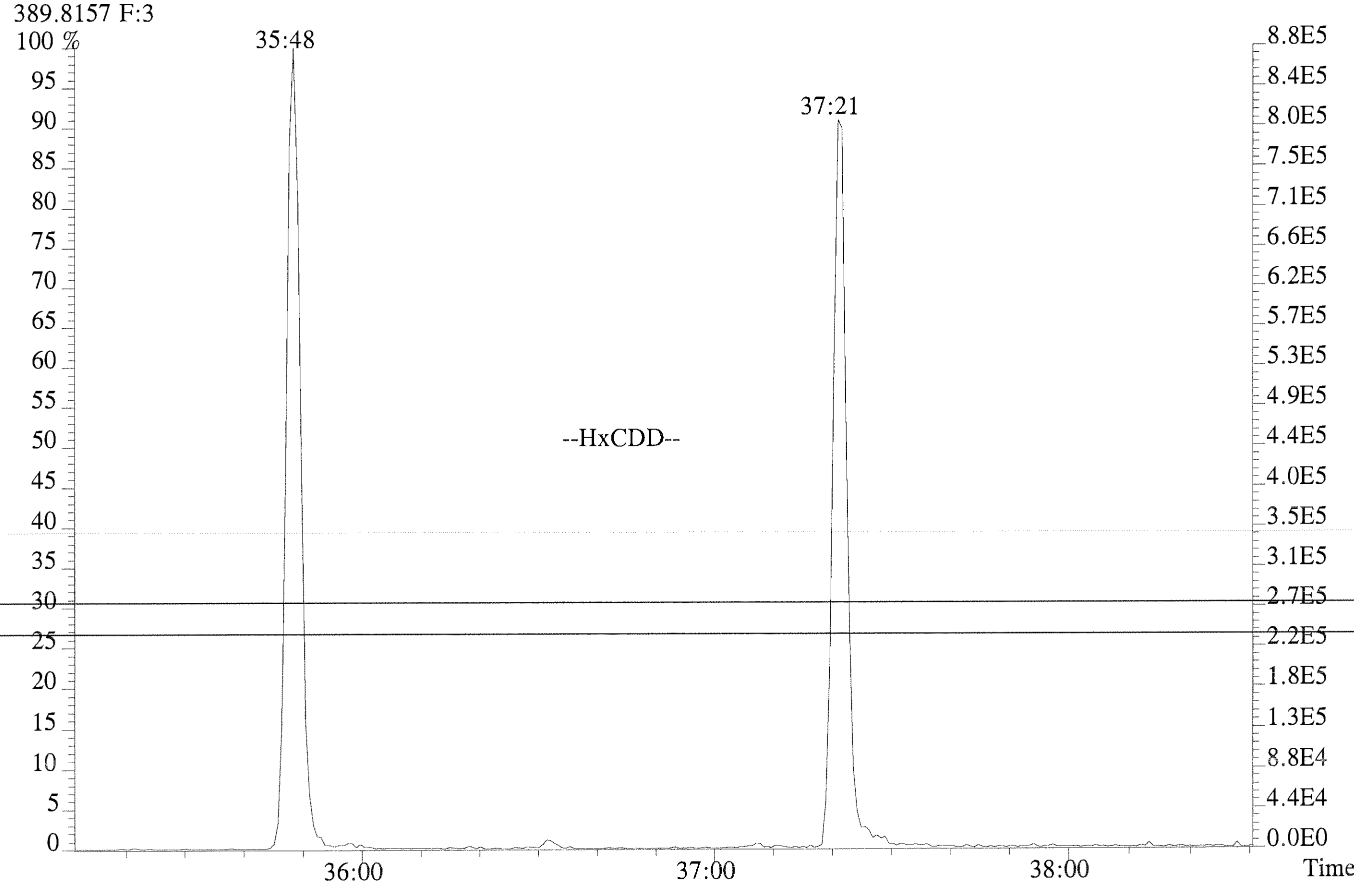
Sample#1 Exp:WINDOW DEFINE

373.8208 F:3



389.8157 F:3



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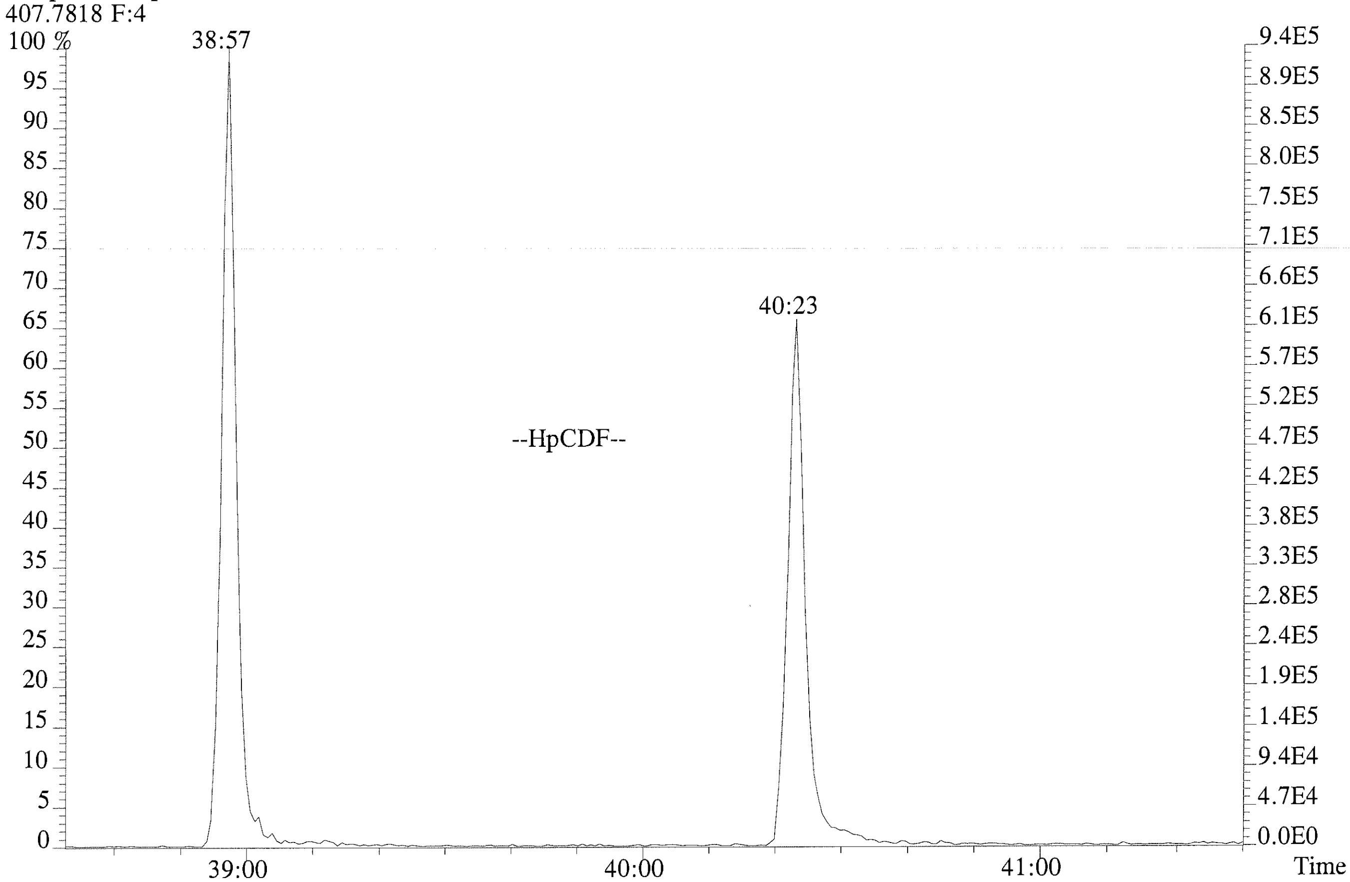
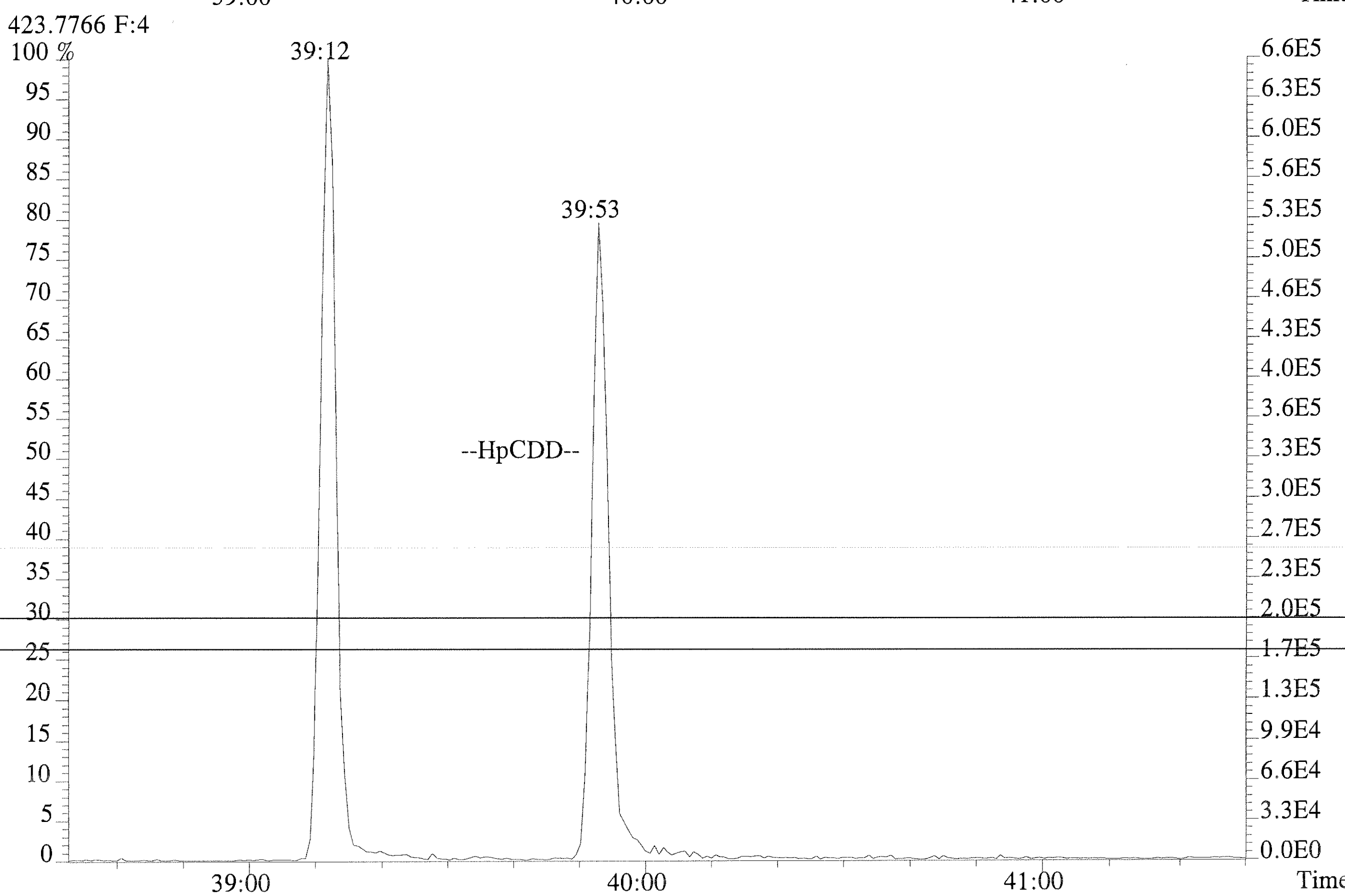
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P173831 | Analysis Date: 3-OCT-14 Time: 22:15:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.1	7.8 - 12.9	-9.3
1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	47	39 - 65	-5.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	48	39 - 64	-3.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	50	41 - 61	0.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.88	0.76-1.02	99	79 - 126	-1.0
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.0	8.4 - 12.0	-9.6
1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	52	41 - 60	3.4
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	51	41 - 61	2.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	53	45 - 56	6.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	4.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	53	45 - 56	5.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	53	44 - 57	5.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.07	0.88-1.20	54	45 - 55	8.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	53	43 - 58	5.2
OCDF	M+2/M+4	0.90	0.76-1.02	102	63 - 159	1.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P173831   Analysis Date: 3-OCT-14 Time: 22:15:16

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	97	82 - 121	-2.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	78	62 - 160	-21.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	101	85 - 117	1.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	98	85 - 118	-1.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	98	72 - 138	-2.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	185	96 - 415	-7.7
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	93	71 - 140	-7.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	73	76 - 130	-27.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	75	77 - 130	-24.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	98	76 - 131	-2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	70 - 143	0.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	97	74 - 135	-2.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	98	78 - 129	-2.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	97	77 - 129	-3.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.2	7.8 - 12.7	-8.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
72675

Run #7 Filename P173831 #1 Samp: 1 Inj: 1 Acquired: 3-OCT-14 22:15:16
Processed: 6-OCT-14 11:51:21 LAB. ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:56	3.136e+03	4.169e+03	0.75	yes	no	1.000
2	Unk	1,2,3,7,8-PeCDF	32:56	2.781e+04	1.718e+04	1.62	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:49	2.638e+04	1.653e+04	1.60	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	36:25	2.417e+04	1.918e+04	1.26	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:31	2.645e+04	2.110e+04	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:60	2.434e+04	1.936e+04	1.26	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:45	2.176e+04	1.733e+04	1.26	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:58	2.229e+04	2.086e+04	1.07	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:24	1.811e+04	1.705e+04	1.06	yes	no	1.000
10	Unk	OCDF	42:57	2.823e+04	3.127e+04	0.90	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:40	2.596e+03	3.476e+03	0.75	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	34:05	1.761e+04	1.153e+04	1.53	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	37:07	1.547e+04	1.258e+04	1.23	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:12	1.663e+04	1.323e+04	1.26	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:26	1.753e+04	1.412e+04	1.24	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:53	1.399e+04	1.324e+04	1.06	yes	no	1.000
17	Unk	OCDD	42:44	2.248e+04	2.540e+04	0.88	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:55	3.722e+04	4.824e+04	0.77	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:55	5.211e+04	3.348e+04	1.56	yes	no	1.131
20	IS	13C-2,3,4,7,8-PeCDF	33:48	5.230e+04	3.360e+04	1.56	yes	no	1.161
21	IS	13C-1,2,3,4,7,8-HxCDF	36:24	2.216e+04	4.337e+04	0.51	yes	no	0.973
22	IS	13C-1,2,3,6,7,8-HxCDF	36:30	2.625e+04	5.085e+04	0.52	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	2.467e+04	4.732e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:44	2.172e+04	4.230e+04	0.51	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:57	1.760e+04	3.935e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:23	1.546e+04	3.501e+04	0.44	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:39	2.818e+04	3.636e+04	0.78	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	34:04	3.995e+04	2.565e+04	1.56	yes	no	1.170
29	IS	13C-1,2,3,4,7,8-HxCDD	37:06	3.096e+04	2.479e+04	1.25	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:12	3.331e+04	2.638e+04	1.26	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:53	2.754e+04	2.640e+04	1.04	yes	no	1.066
32	IS	13C-OCDD	42:44	4.227e+04	4.736e+04	0.89	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	29:07	2.786e+04	3.550e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:26	3.593e+04	2.813e+04	1.28	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:40	6.529e+03				no	1.019

ALS ENVIRONMENTAL
10450 Stancliff, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
72675

Run #7 Filename P173831 Samp: 1 Inj: 1 Acquired: 3-OCT-14 22:15:16
Processed: 6-OCT-14 11:51:21 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.88e+05	3.20e+02	1.8e+03	7.78e+05	1.27e+03	6.1e+02
2	1,2,3,7,8-PeCDF	5.42e+06	5.20e+02	1.0e+04	3.35e+06	1.01e+03	3.3e+03
3	2,3,4,7,8-PeCDF	5.24e+06	5.20e+02	1.0e+04	3.29e+06	1.01e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	5.20e+06	5.16e+02	1.0e+04	4.12e+06	2.08e+02	2.0e+04
5	1,2,3,6,7,8-HxCDF	5.49e+06	5.16e+02	1.1e+04	4.34e+06	2.08e+02	2.1e+04
6	2,3,4,6,7,8-HxCDF	5.28e+06	5.16e+02	1.0e+04	4.17e+06	2.08e+02	2.0e+04
7	1,2,3,7,8,9-HxCDF	4.38e+06	5.16e+02	8.5e+03	3.39e+06	2.08e+02	1.6e+04
8	1,2,3,4,6,7,8-HpCDF	4.69e+06	3.46e+03	1.4e+03	4.41e+06	2.32e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.35e+06	3.46e+03	9.7e+02	3.09e+06	2.32e+03	1.3e+03
10	OCDF	4.44e+06	1.52e+02	2.9e+04	4.90e+06	3.92e+02	1.2e+04
11	2,3,7,8-TCDD	4.92e+05	3.68e+02	1.3e+03	6.56e+05	1.92e+02	3.4e+03
12	1,2,3,7,8-PeCDD	3.62e+06	7.84e+02	4.6e+03	2.31e+06	5.20e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	3.48e+06	2.40e+02	1.4e+04	2.81e+06	7.60e+02	3.7e+03
14	1,2,3,6,7,8-HxCDD	3.51e+06	2.40e+02	1.5e+04	2.77e+06	7.60e+02	3.6e+03
15	1,2,3,7,8,9-HxCDD	3.55e+06	2.40e+02	1.5e+04	2.88e+06	7.60e+02	3.8e+03
16	1,2,3,4,6,7,8-HpCDD	2.68e+06	5.48e+02	4.9e+03	2.53e+06	9.60e+01	2.6e+04
17	OCDD	3.57e+06	1.20e+02	3.0e+04	4.02e+06	2.72e+02	1.5e+04
18	13C-2,3,7,8-TCDF	6.77e+06	9.60e+02	7.1e+03	8.84e+06	6.60e+02	1.3e+04
19	13C-1,2,3,7,8-PeCDF	1.03e+07	2.84e+02	3.6e+04	6.58e+06	8.48e+02	7.8e+03
20	13C-2,3,4,7,8-PeCDF	1.04e+07	2.84e+02	3.7e+04	6.77e+06	8.48e+02	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.74e+06	3.72e+02	1.3e+04	9.28e+06	9.92e+02	9.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.51e+06	3.72e+02	1.5e+04	1.06e+07	9.92e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.41e+06	3.72e+02	1.5e+04	1.03e+07	9.92e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.39e+06	3.72e+02	1.2e+04	8.28e+06	9.92e+02	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.68e+06	9.92e+02	3.7e+03	8.29e+06	6.85e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.84e+06	9.92e+02	2.9e+03	6.38e+06	6.85e+03	9.3e+02
27	13C-2,3,7,8-TCDD	5.41e+06	2.95e+03	1.8e+03	7.01e+06	1.45e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	7.93e+06	5.76e+02	1.4e+04	5.05e+06	2.48e+02	2.0e+04
29	13C-1,2,3,4,7,8-HxCDD	6.90e+06	9.92e+02	7.0e+03	5.56e+06	1.12e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	6.90e+06	9.92e+02	7.0e+03	5.51e+06	1.12e+03	4.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.25e+06	9.60e+02	5.5e+03	5.12e+06	3.44e+02	1.5e+04
32	13C-OCDD	6.65e+06	4.64e+02	1.4e+04	7.36e+06	3.68e+02	2.0e+04
33	13C-1,2,3,4-TCDD	5.16e+06	2.95e+03	1.7e+03	6.58e+06	1.45e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	7.21e+06	9.92e+02	7.3e+03	5.89e+06	1.12e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	1.20e+06	8.24e+02	1.5e+03			

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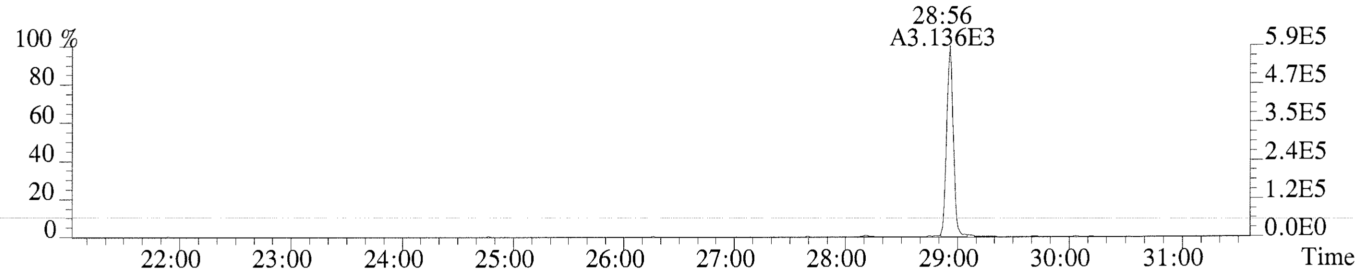
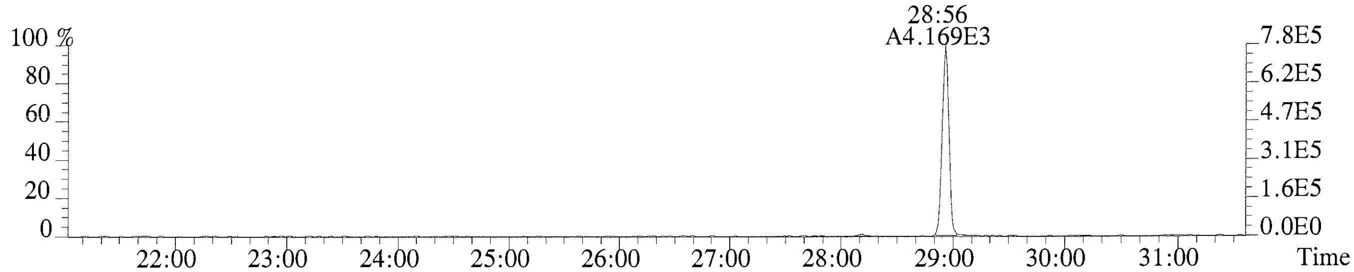
XLSN

File:P173831 #1-815 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

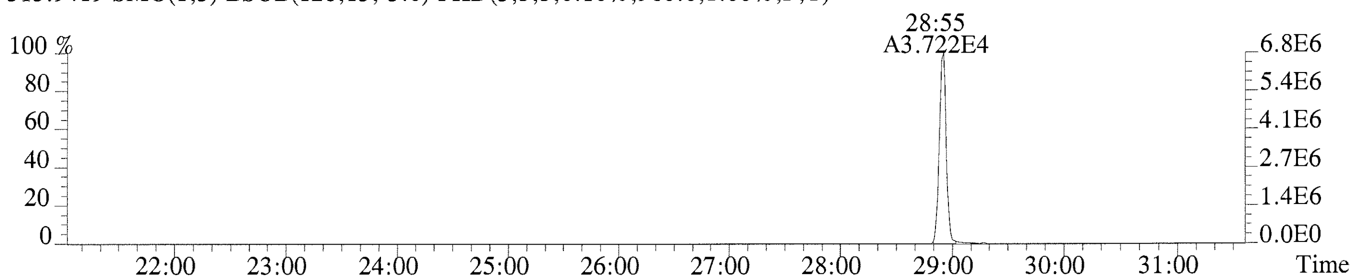
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



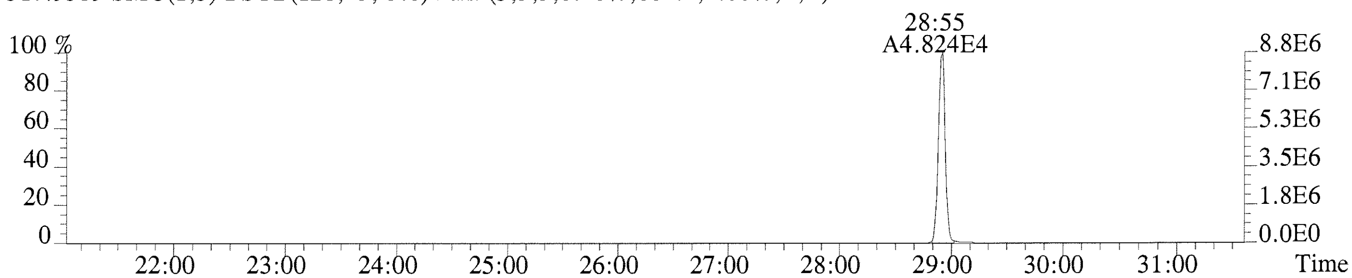
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



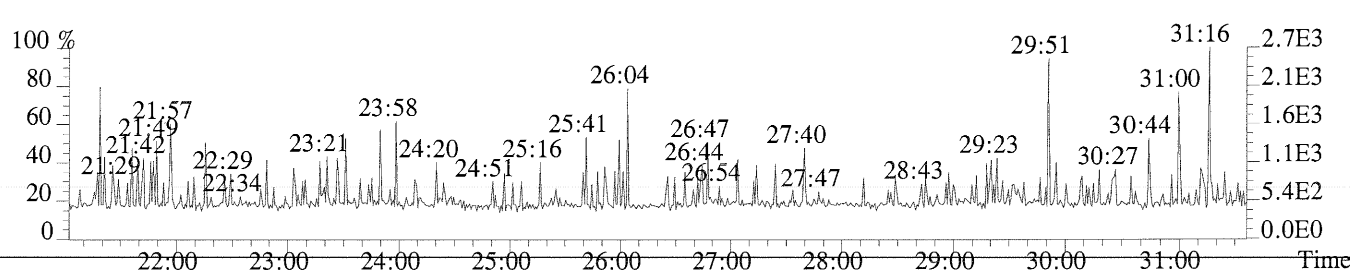
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



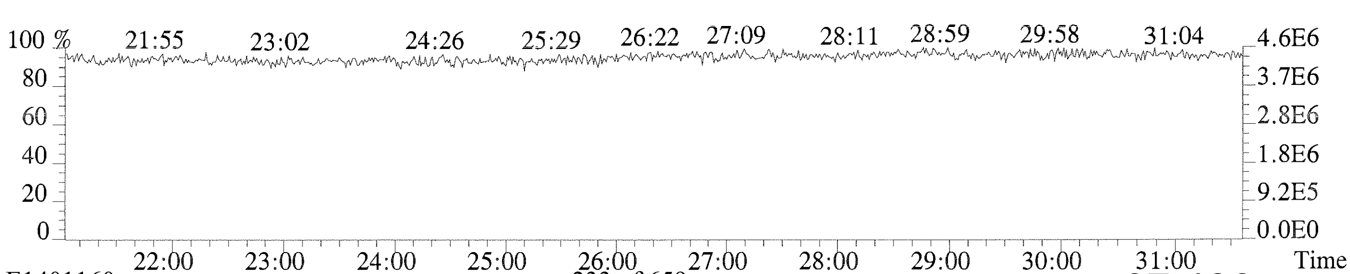
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



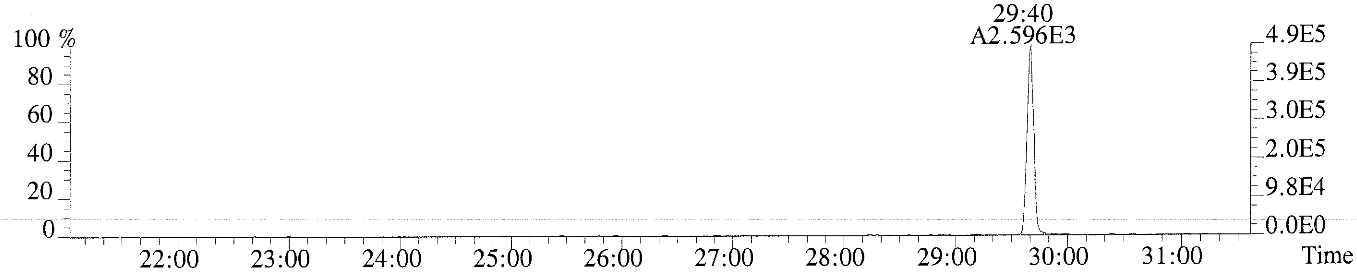
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



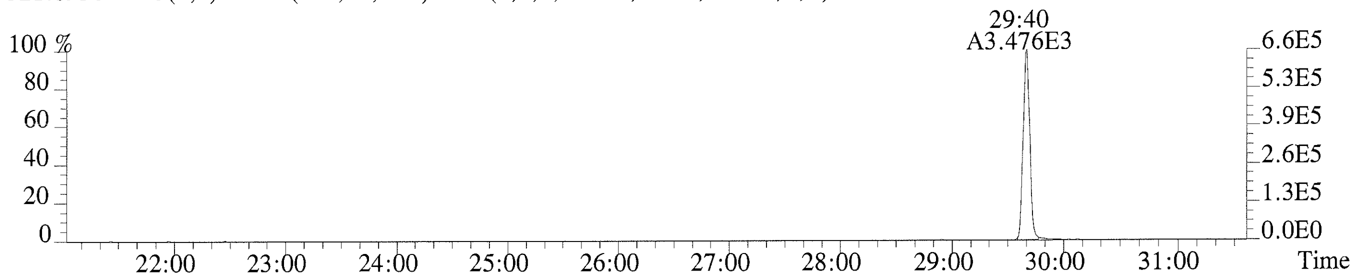
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



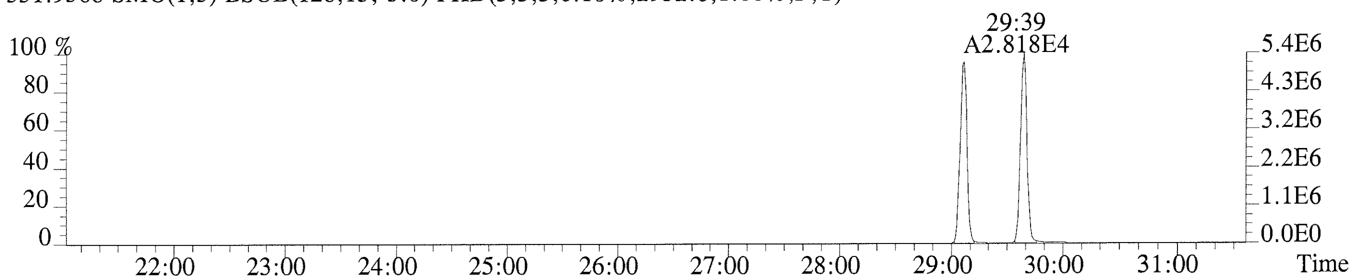
File:P173831 #1-815 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



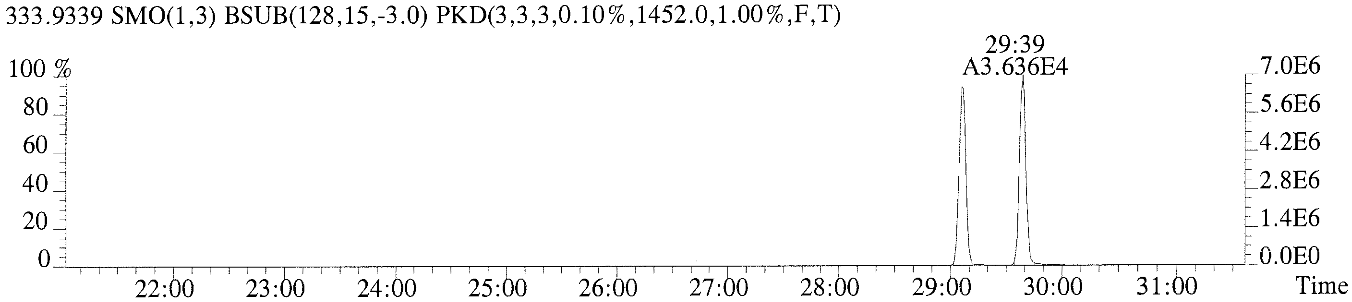
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



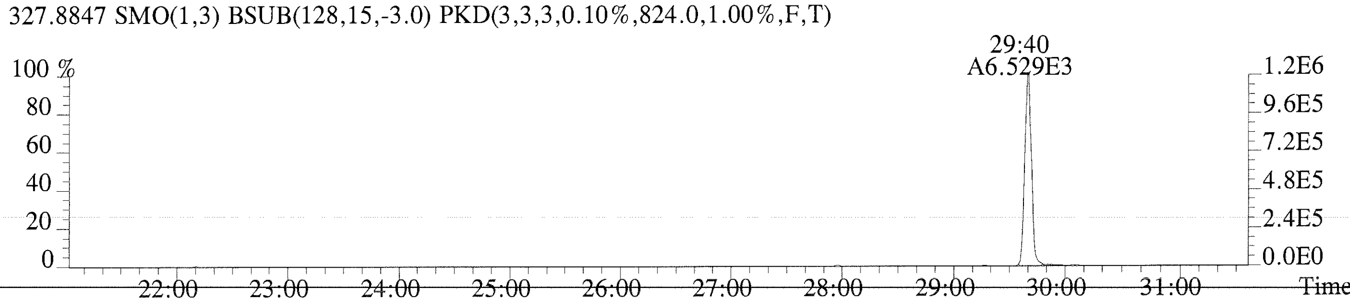
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2952.0,1.00%,F,T)



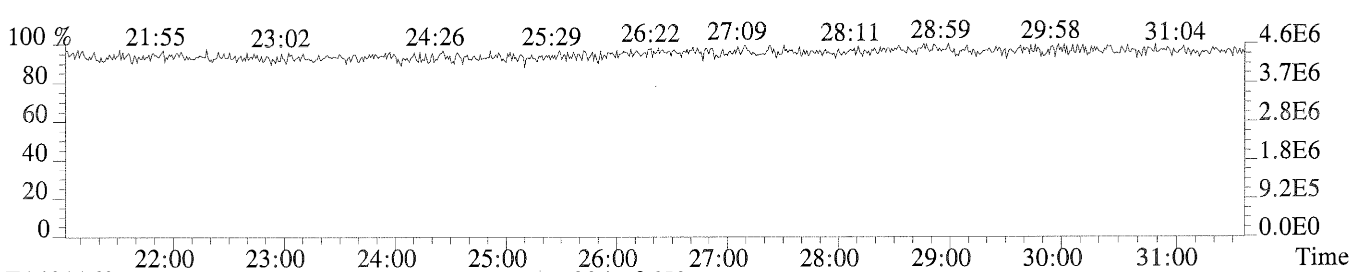
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



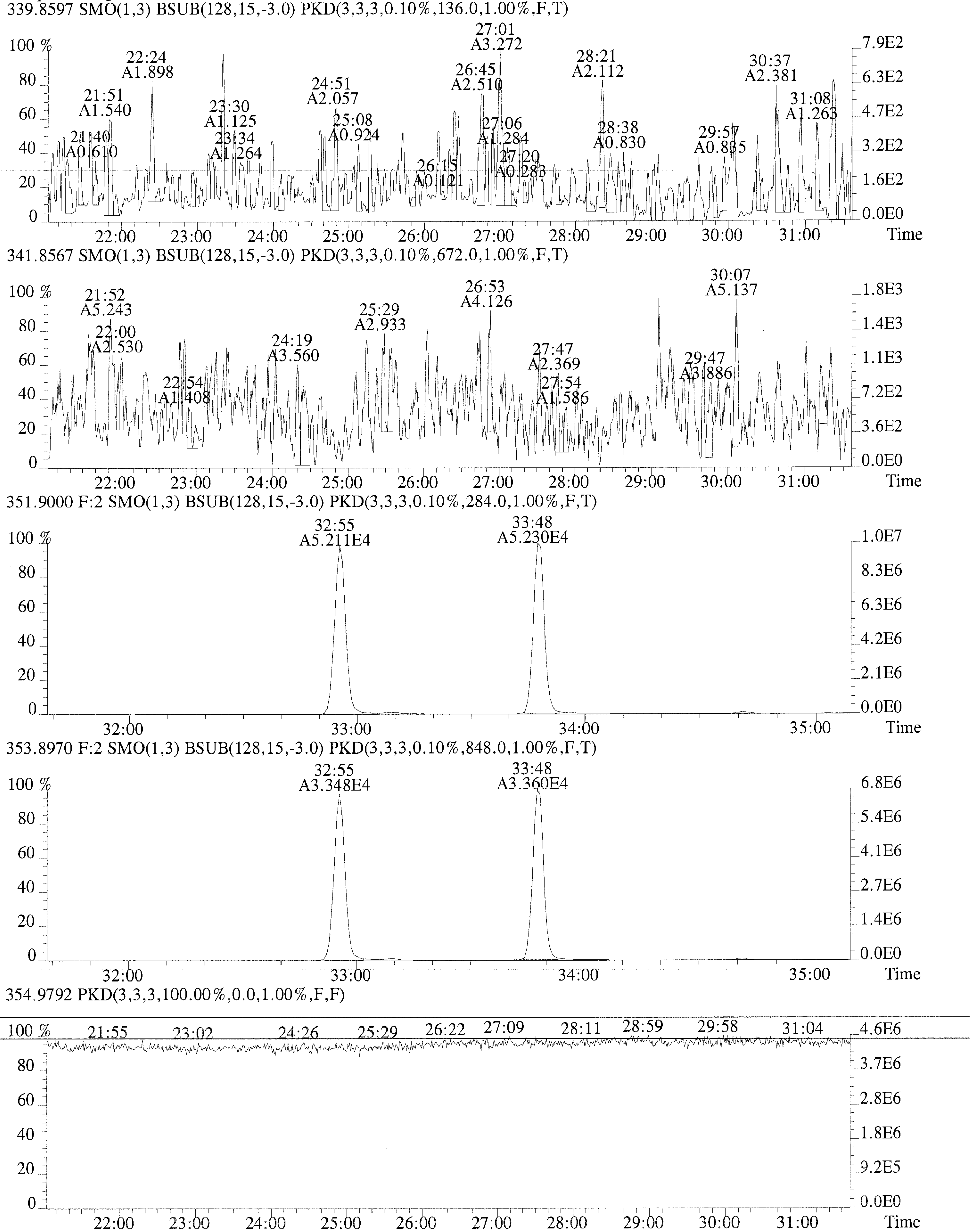
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



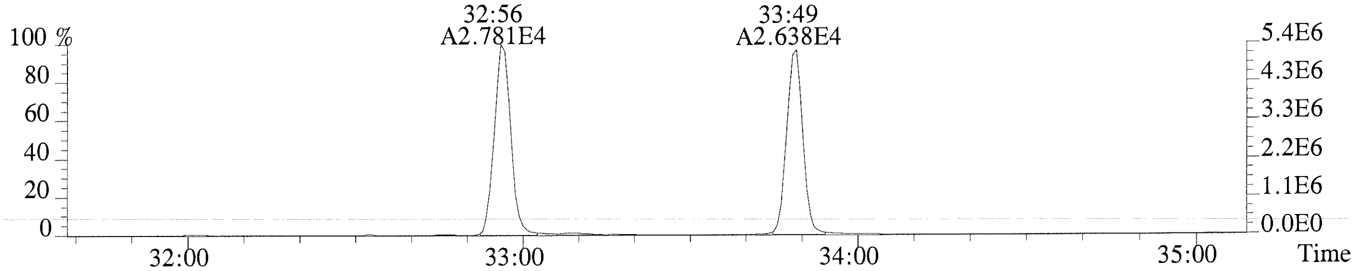
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



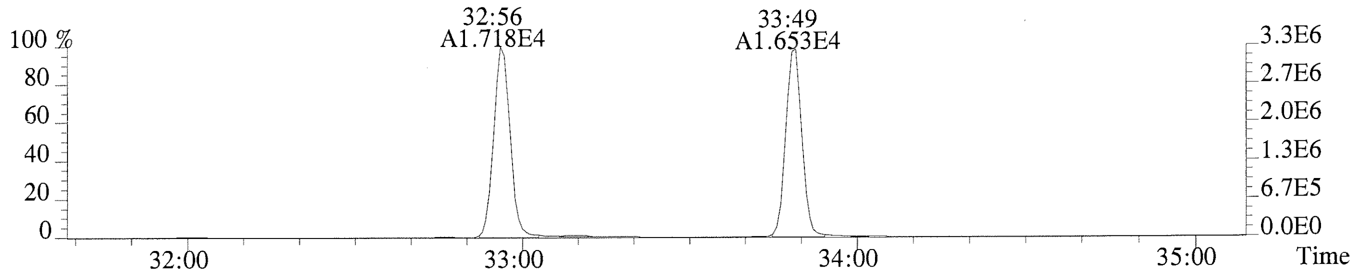
File:P173831 #1-815 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



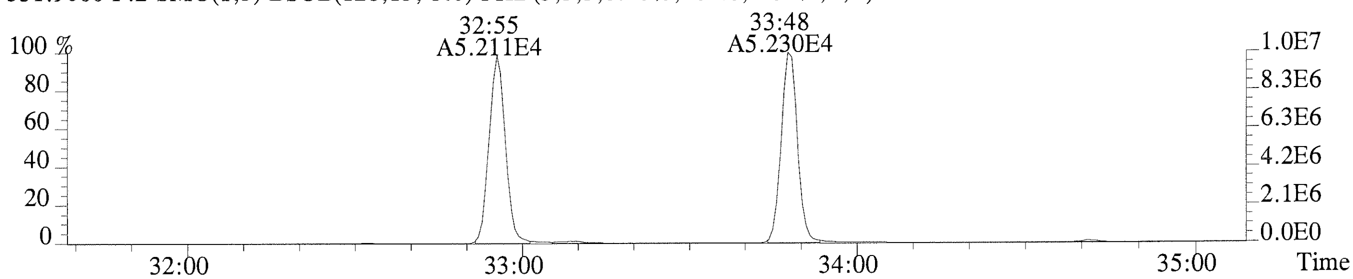
File:P173831 #1-319 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



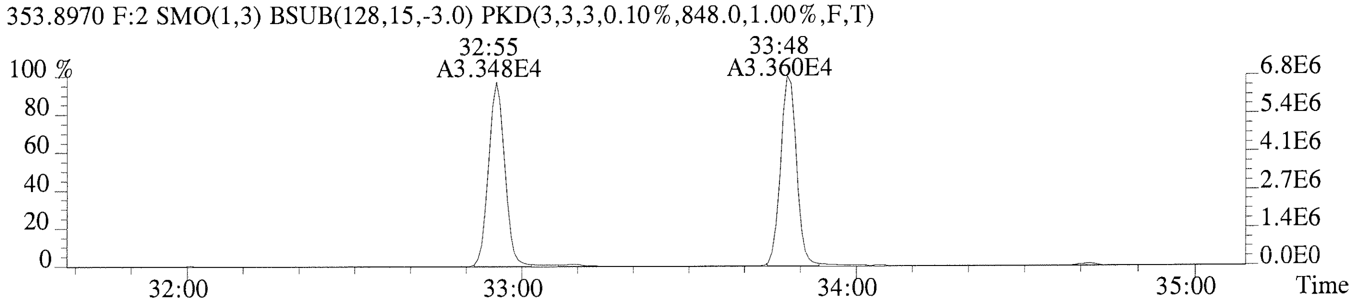
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



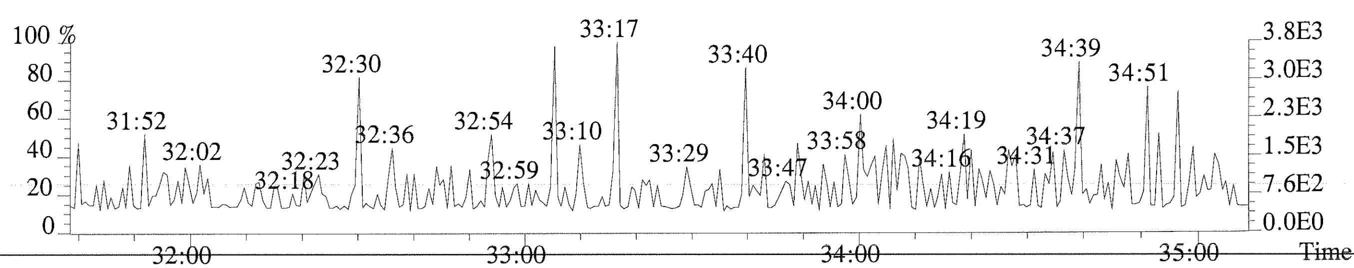
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



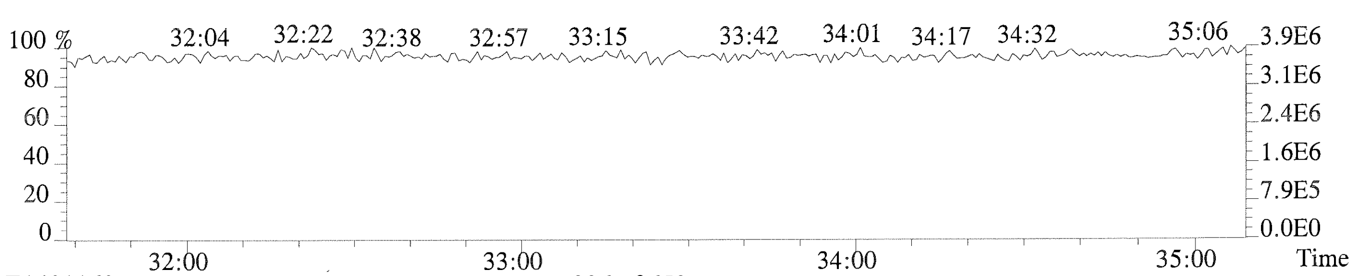
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



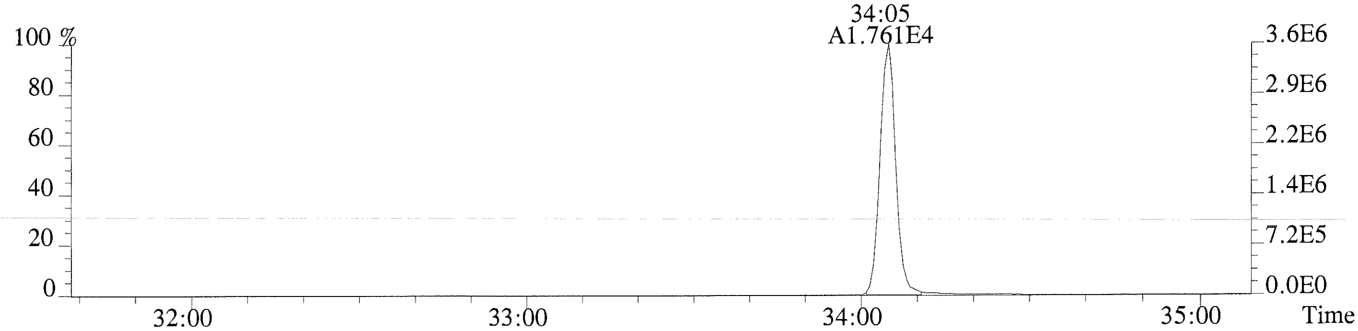
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



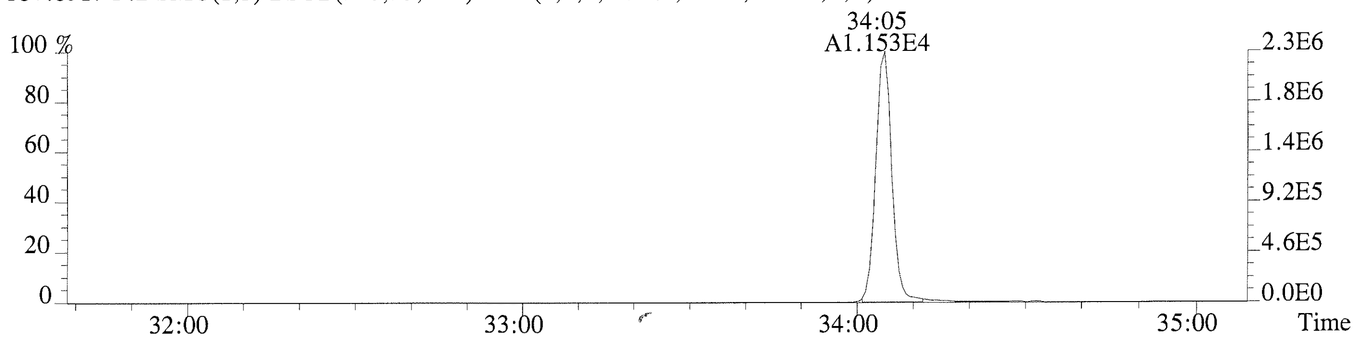
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



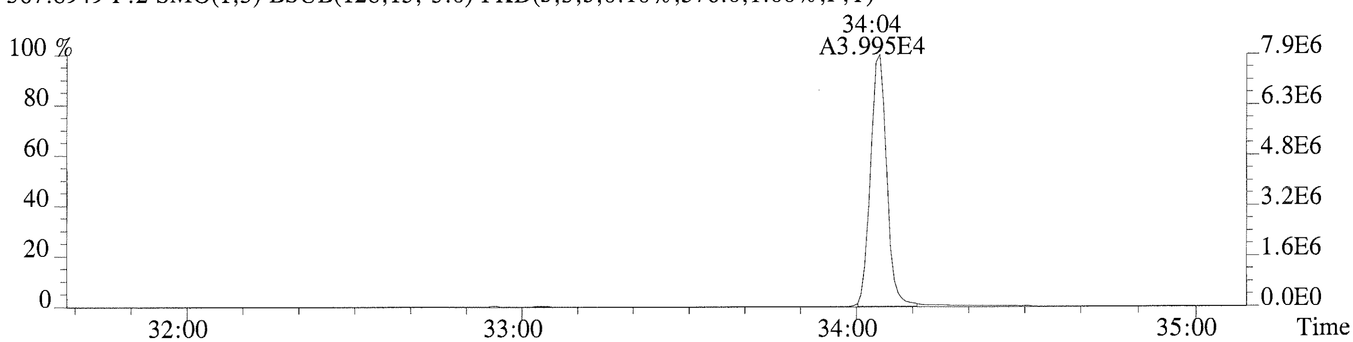
File:P173831 #1-319 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



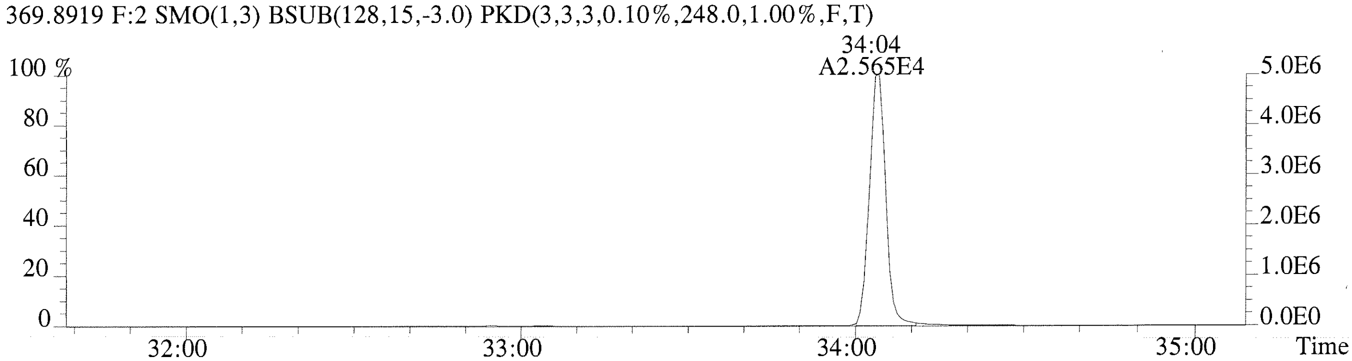
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



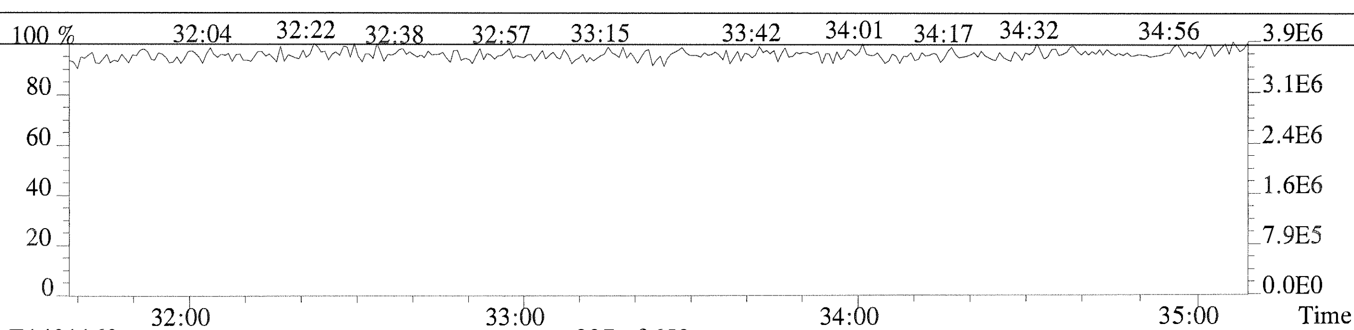
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



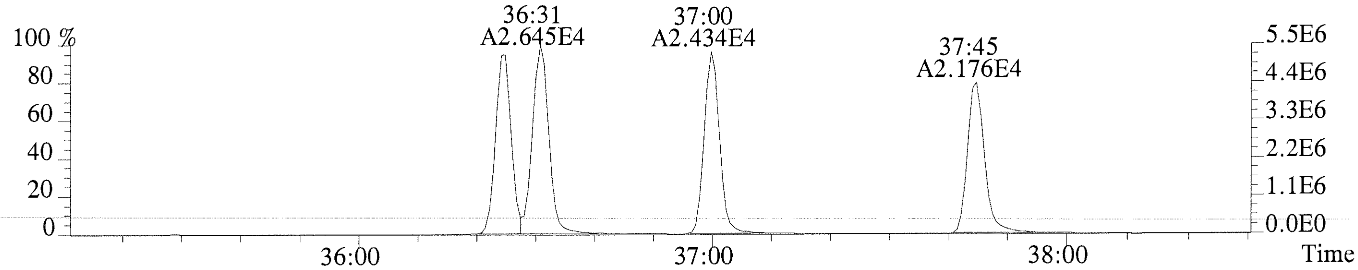
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



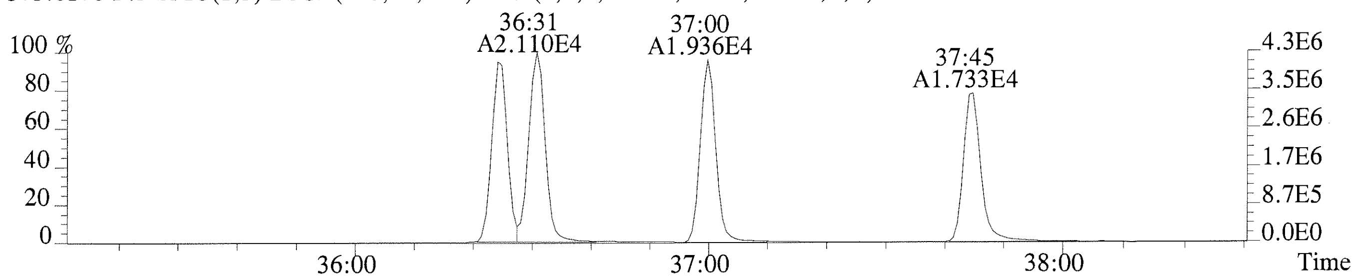
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



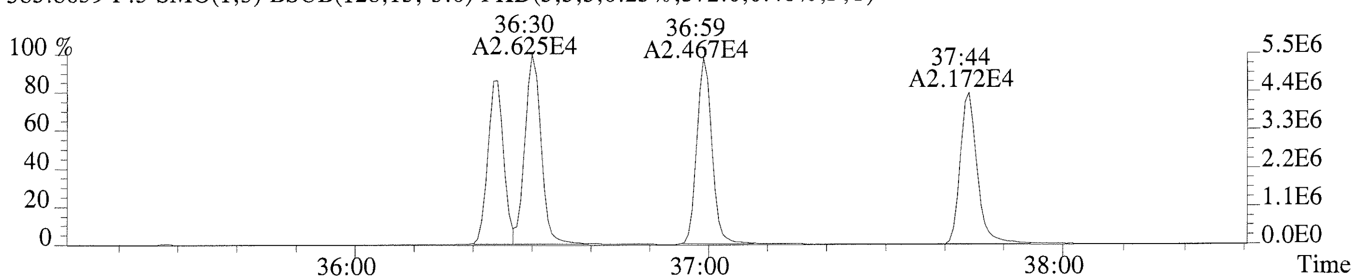
File:P173831 #1-302 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



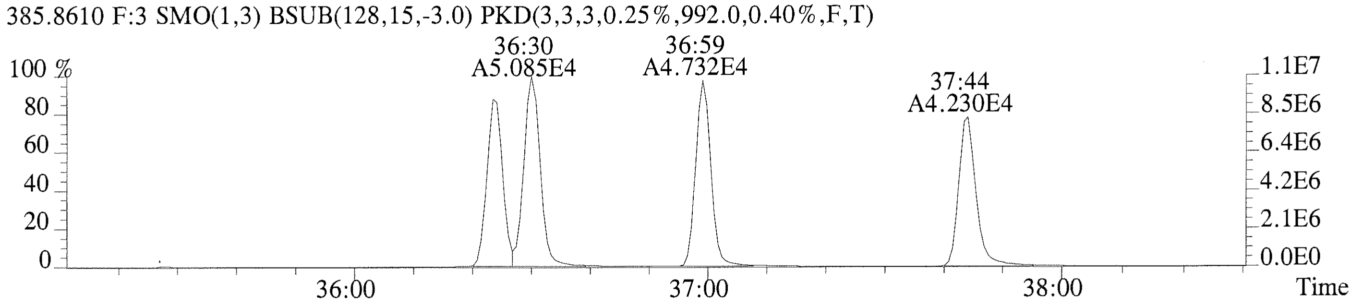
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



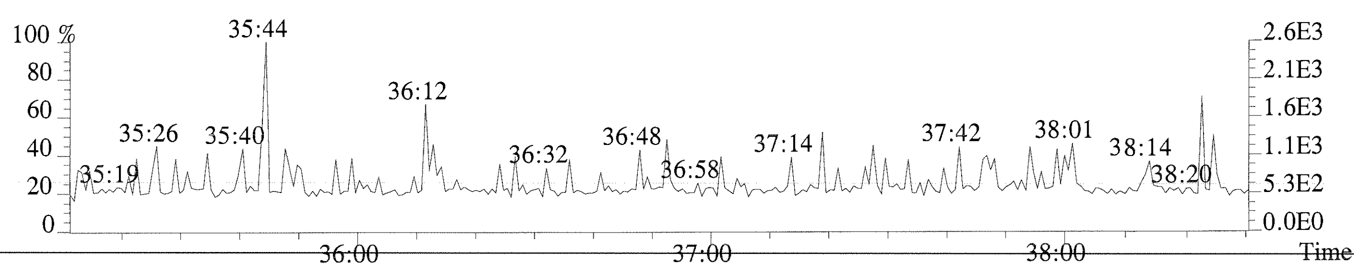
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



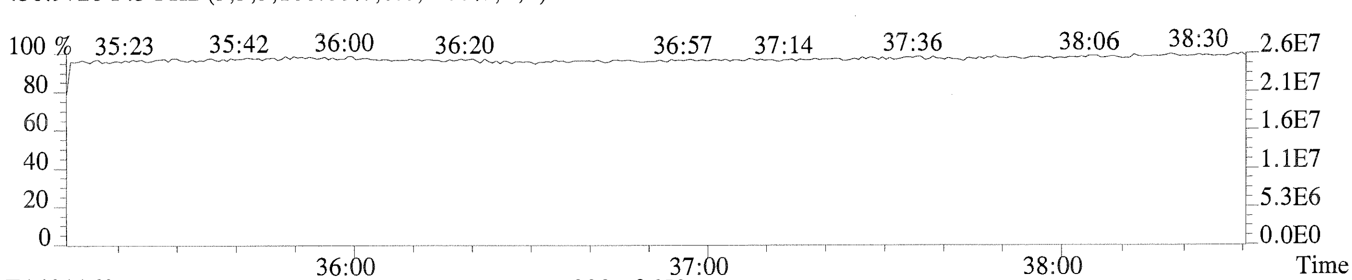
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

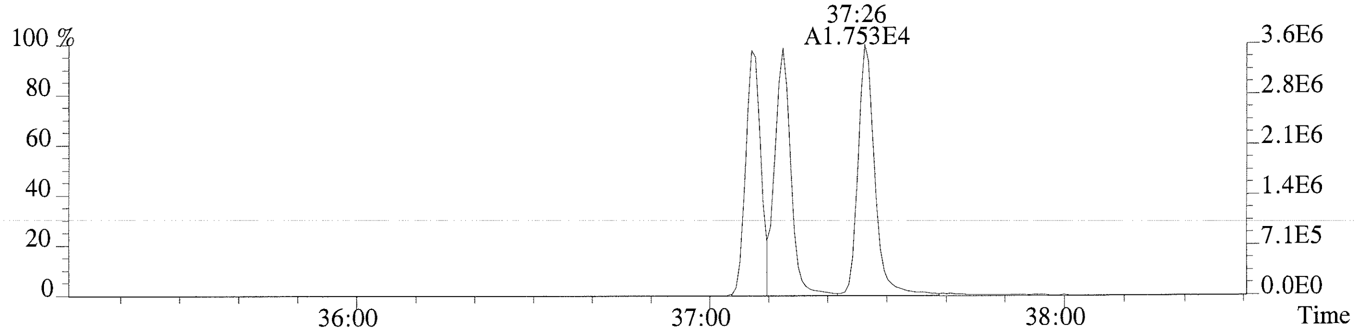


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

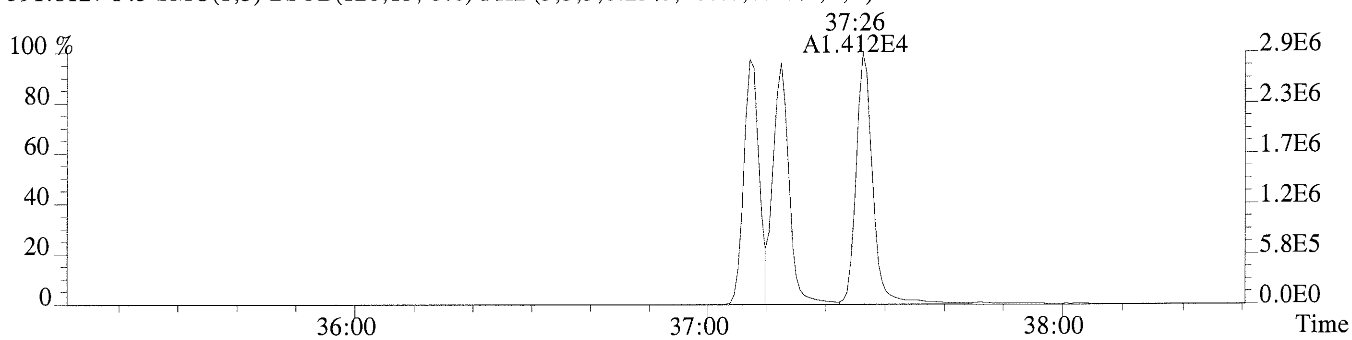


File:P173831 #1-302 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

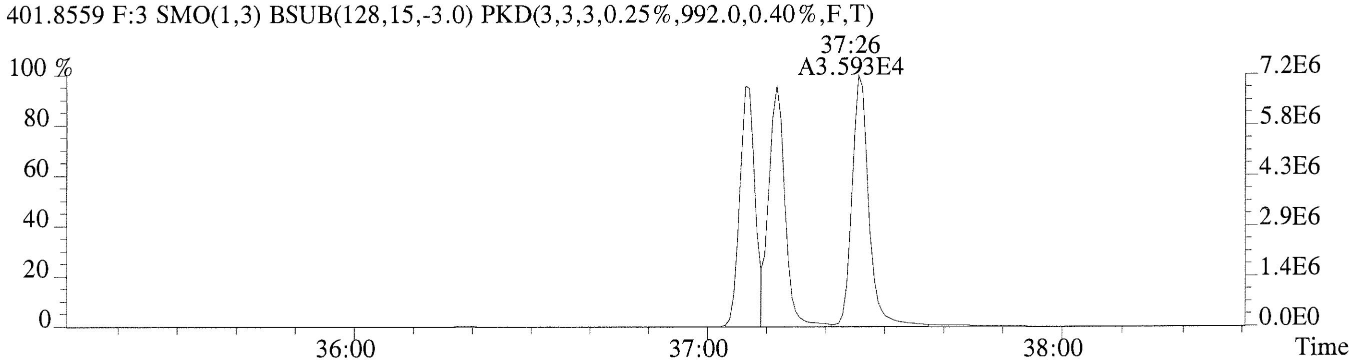
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



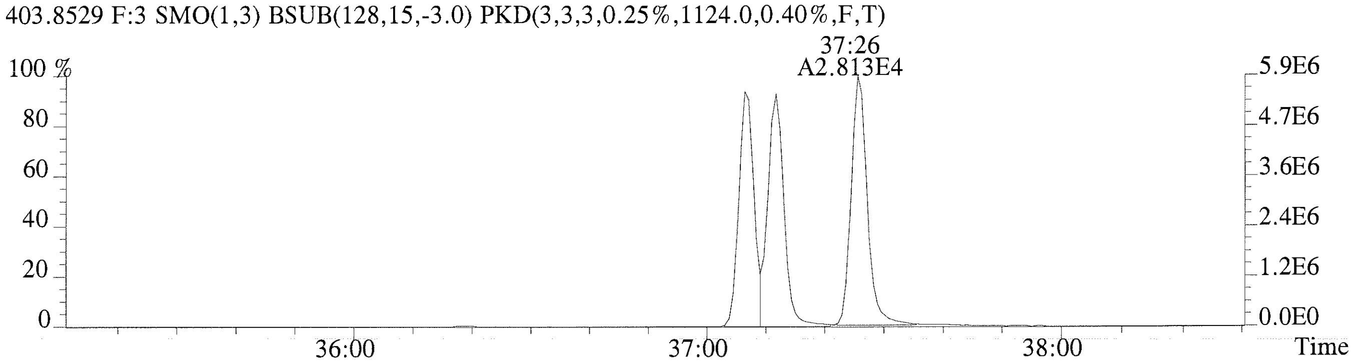
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



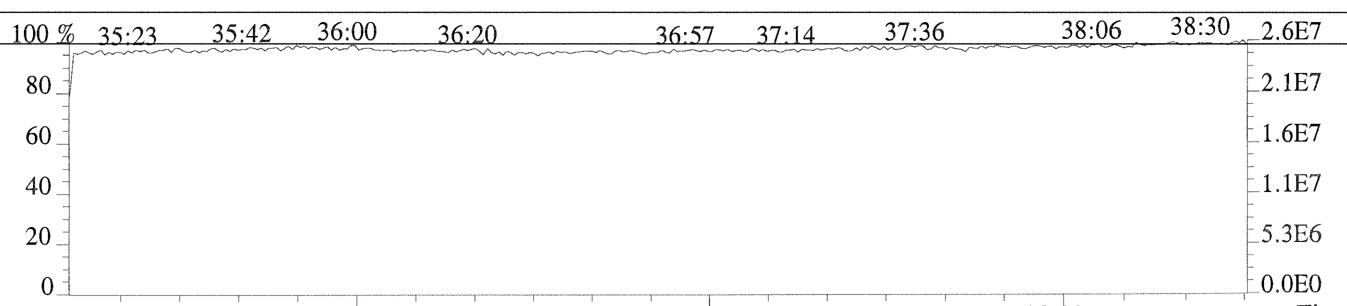
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



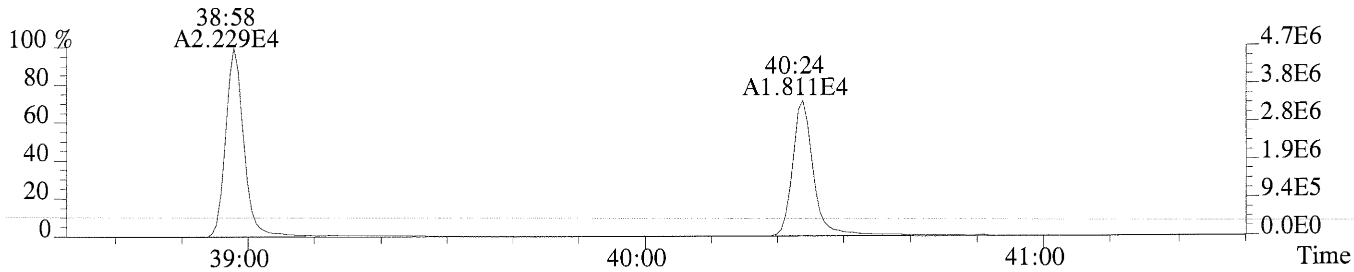
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



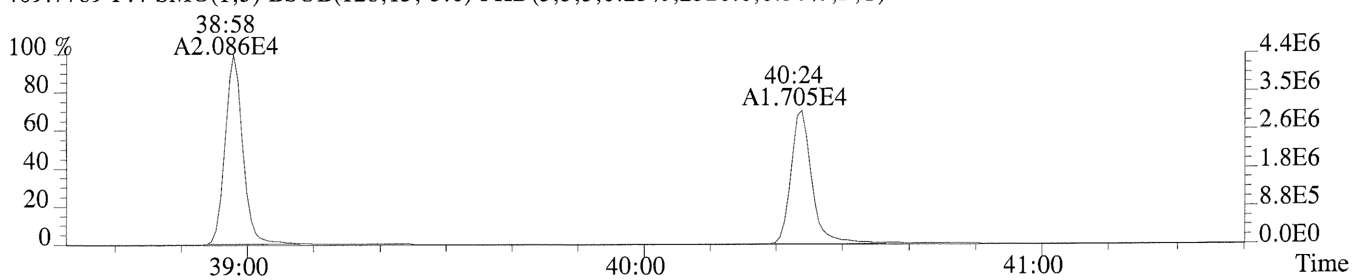
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



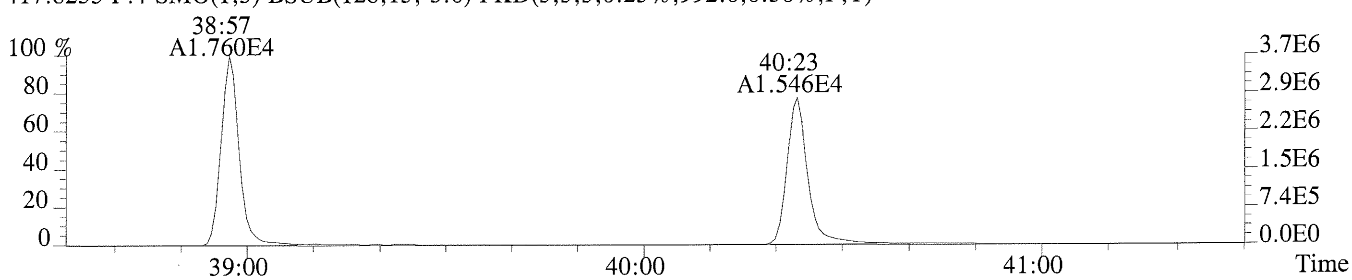
File:P173831 #1-269 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3460.0,0.50%,F,T)



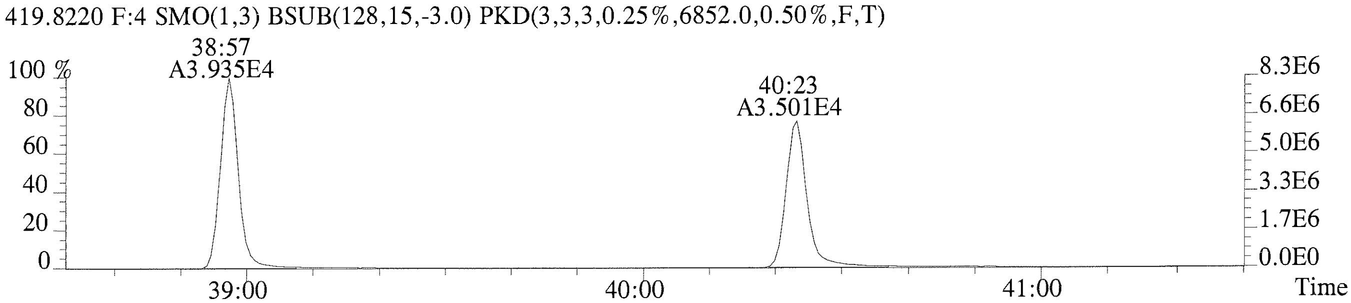
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.50%,F,T)



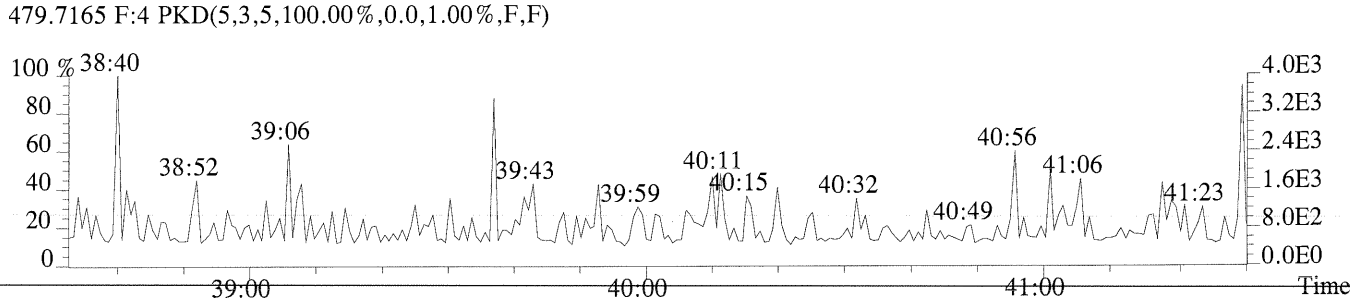
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.50%,F,T)



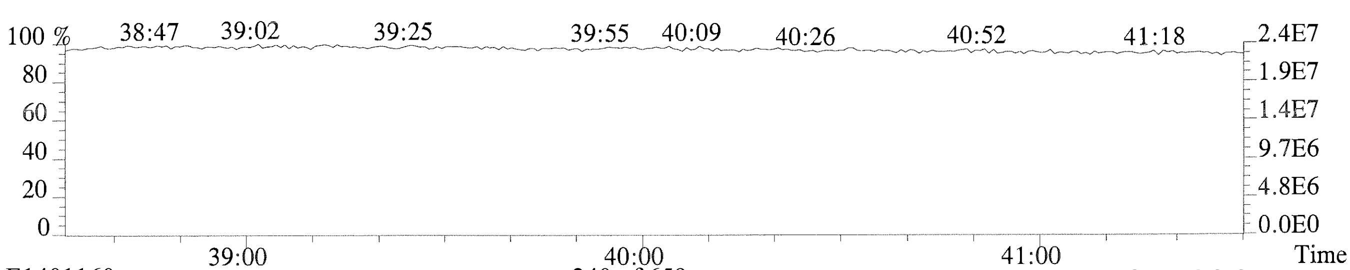
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6852.0,0.50%,F,T)



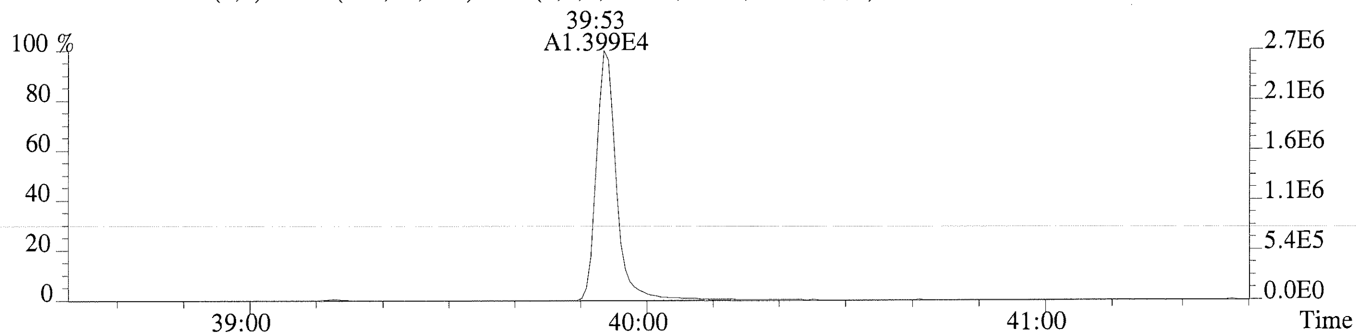
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



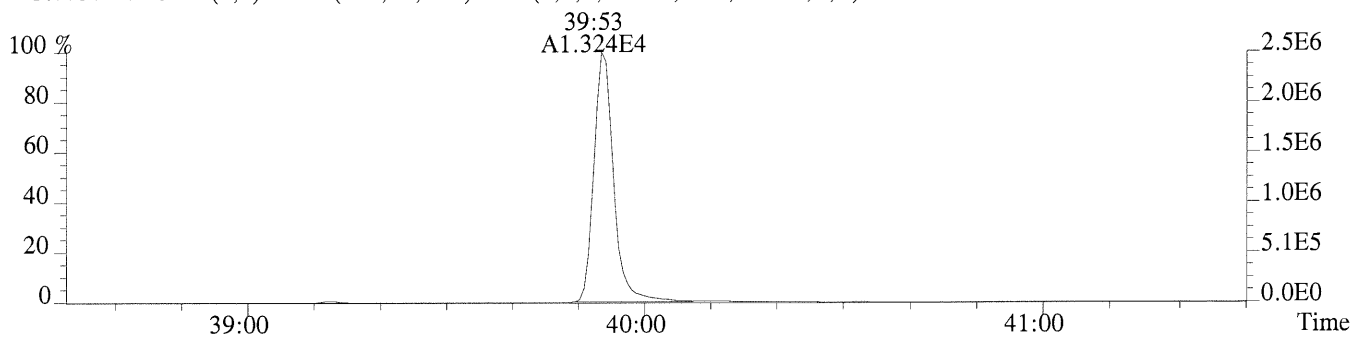
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



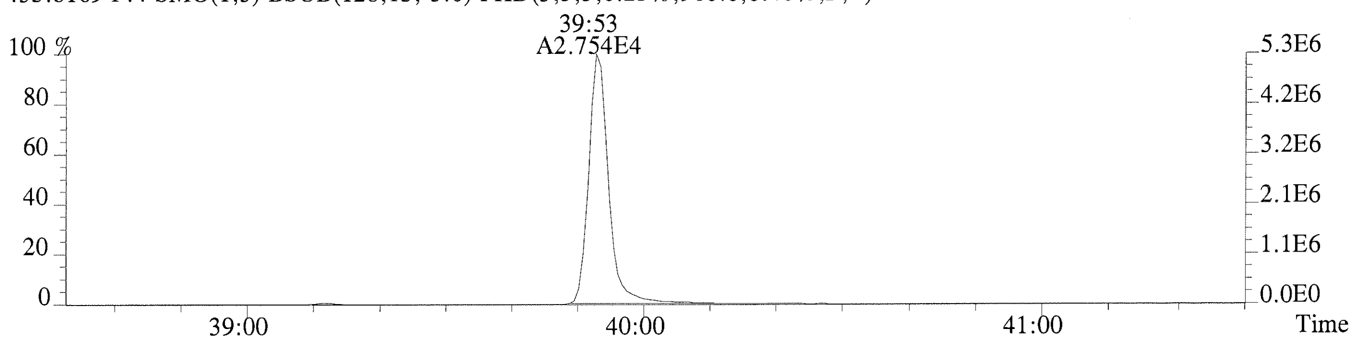
File:P173831 #1-269 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



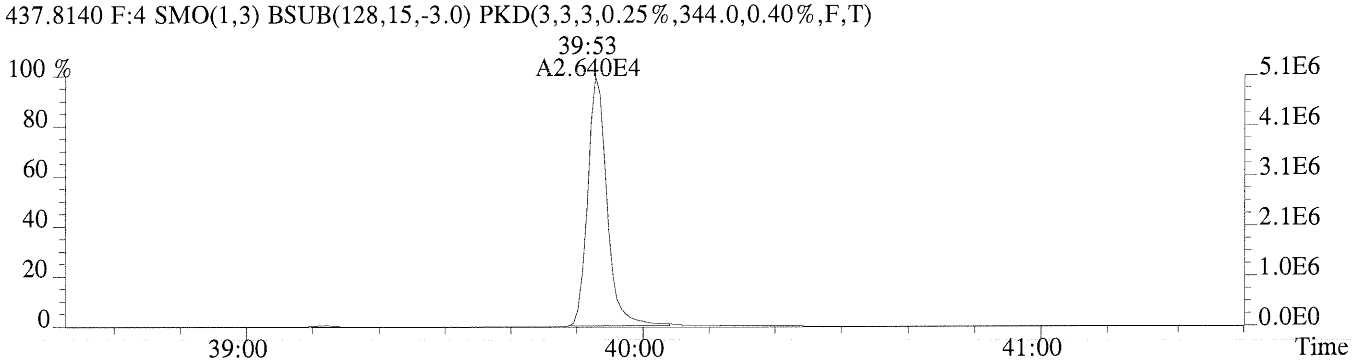
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



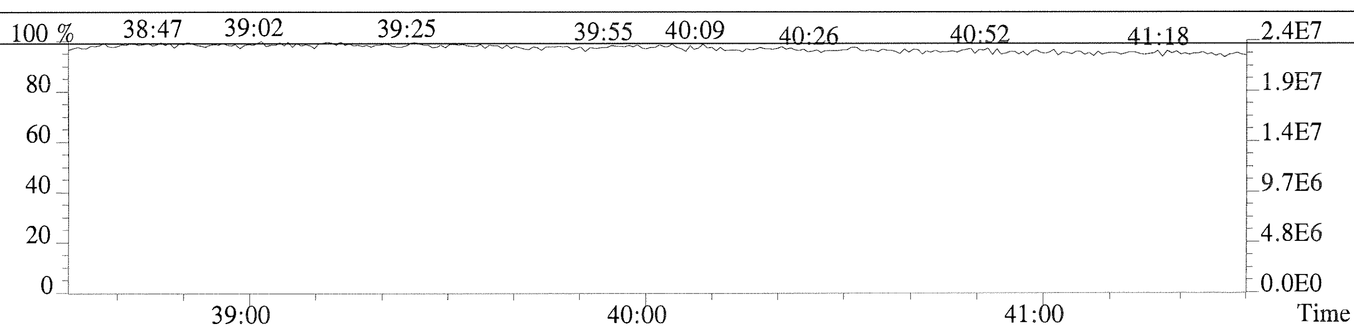
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



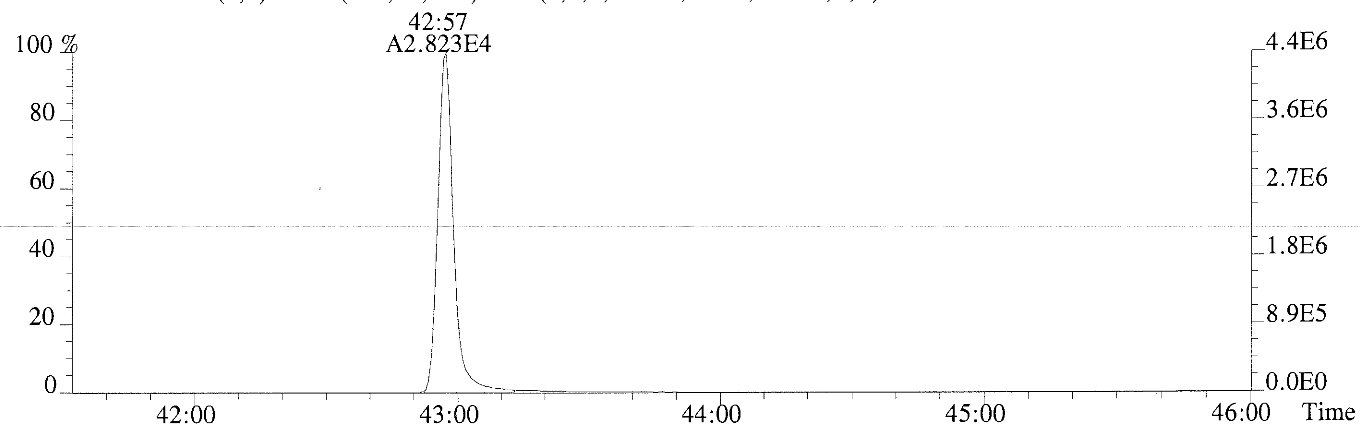
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



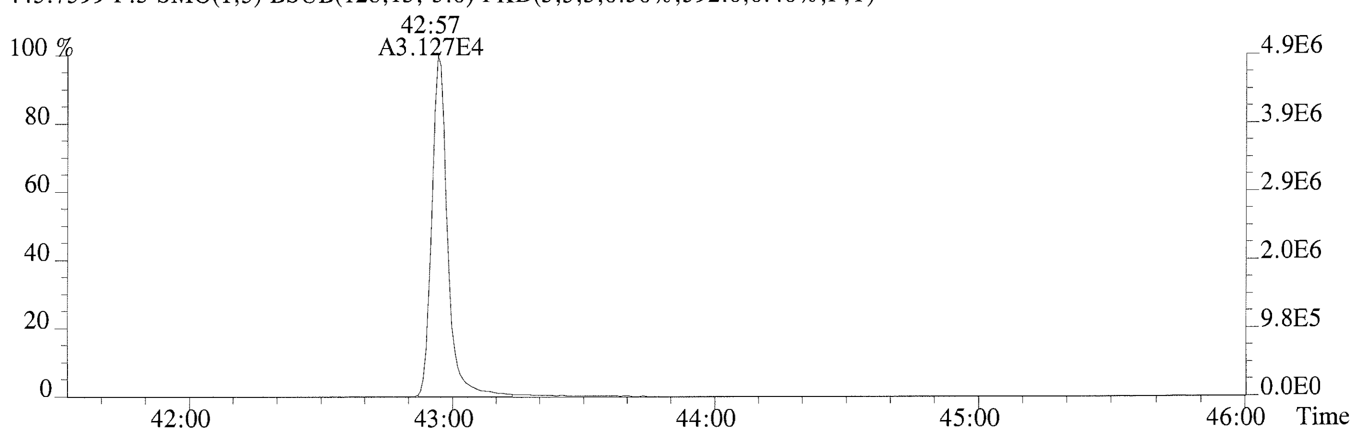
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



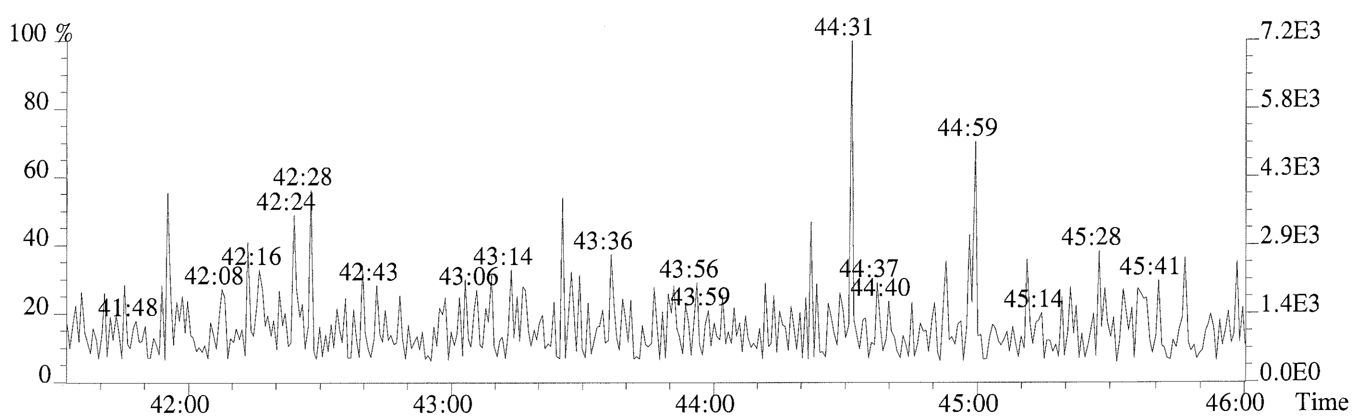
File:P173831 #1-411 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



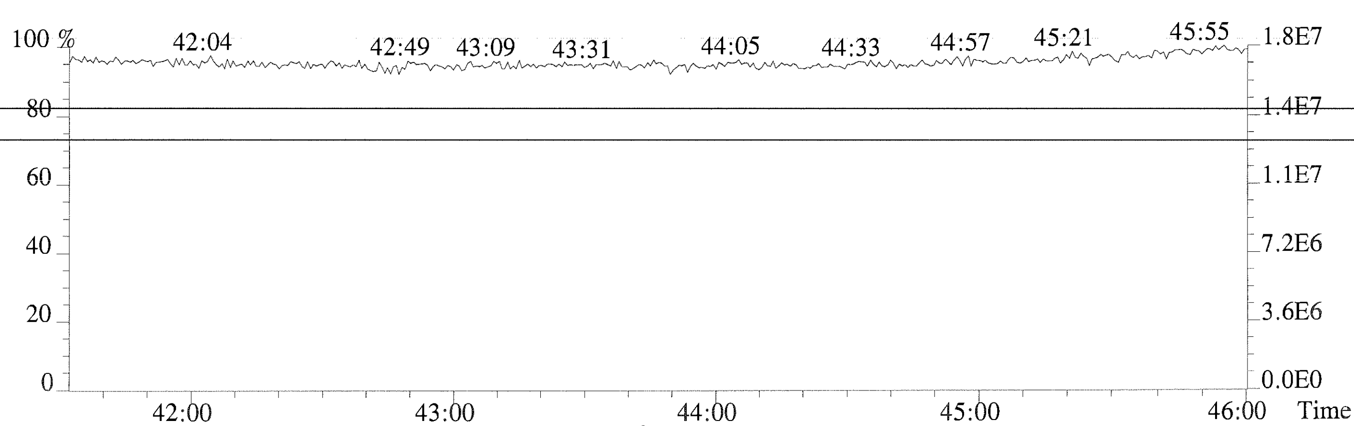
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

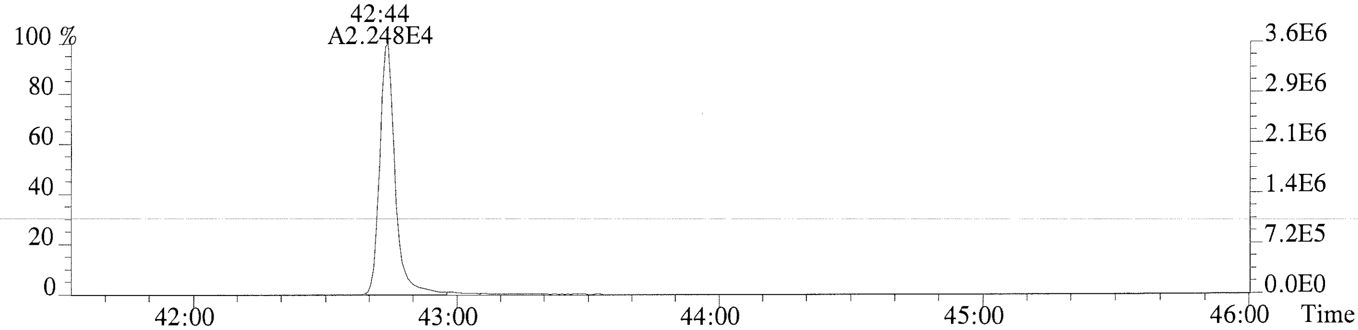


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

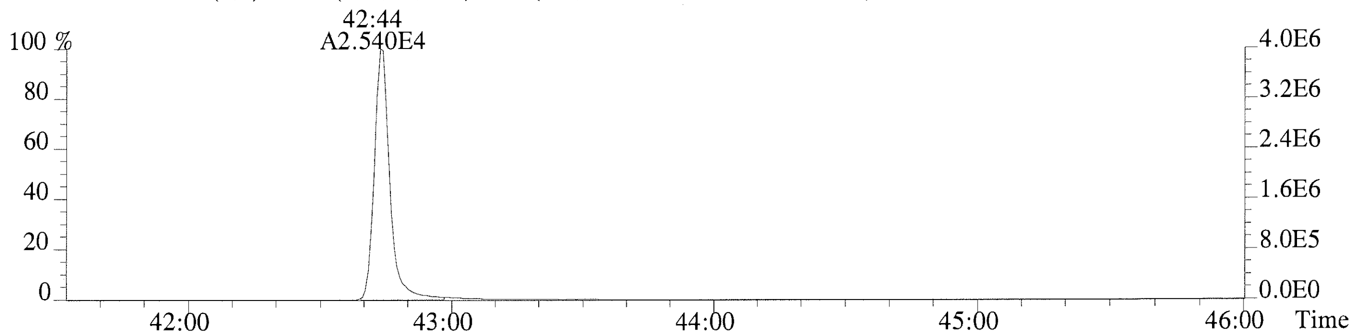


File:P173831 #1-411 Acq: 3-OCT-2014 22:15:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

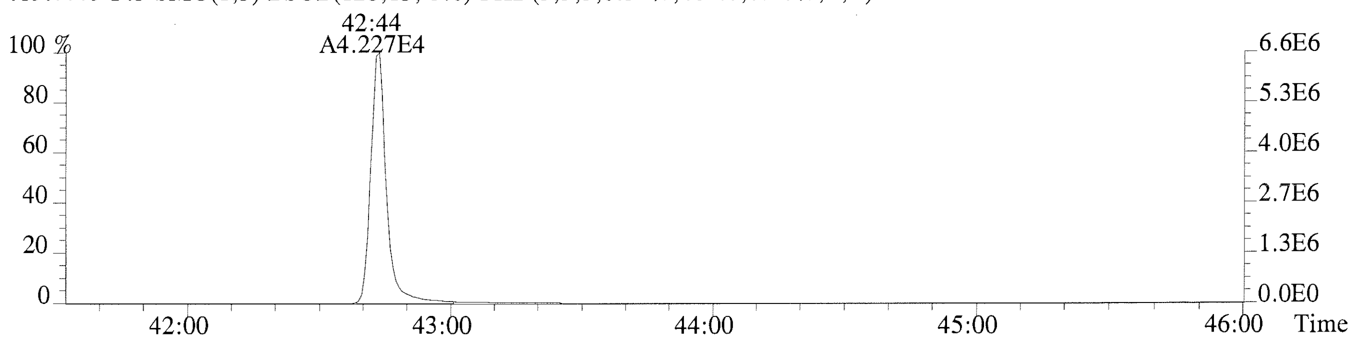
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,120.0,0.40%,F,T)



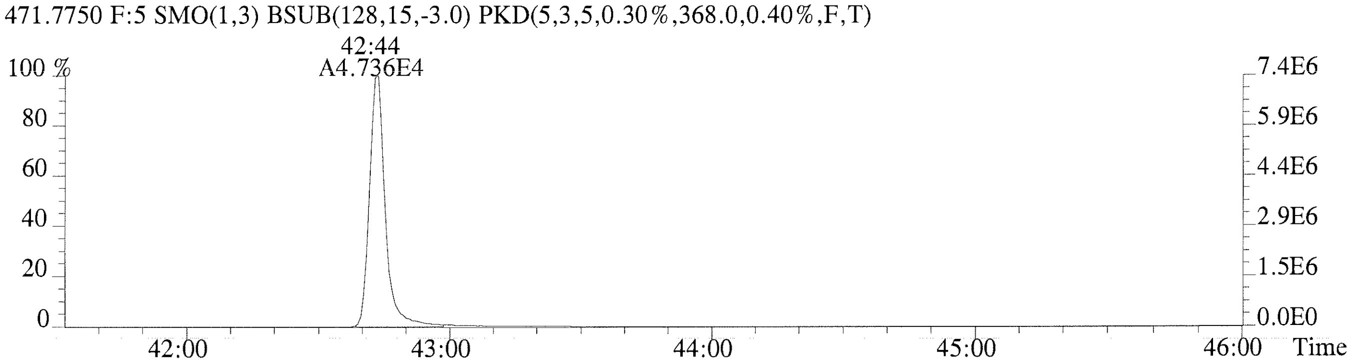
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



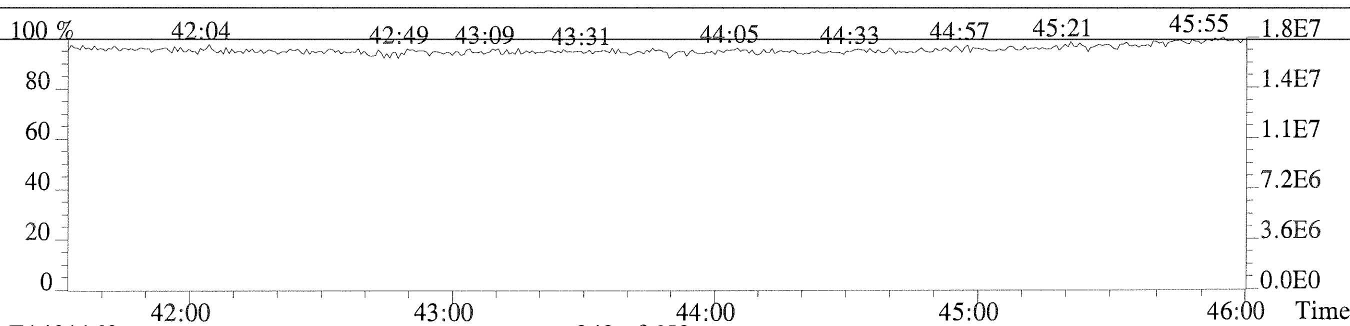
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P173843 Analysis Date: 4-OCT-14 Time: 07:52:42

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.3	7.8 - 12.9	-7.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	49	39 - 65	-2.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	49	41 - 61	-1.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.2
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.4	8.4 - 12.0	-6.1
1,2,3,7,8-PeCDF	M+2/M+4	1.64	1.32-1.78	52	41 - 60	4.7
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	52	41 - 61	4.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	54	45 - 56	7.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.30	1.05-1.43	53	44 - 57	5.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	54	45 - 56	8.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	53	44 - 57	5.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	53	45 - 55	7.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	53	43 - 58	6.9
OCDF	M+2/M+4	0.92	0.76-1.02	103	63 - 159	2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL　　Episode No.:

Contract No.:　　SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03　　GC Column ID: DB-5MSUI

VER Data Filename: P173843　　Analysis Date: 4-OCT-14 Time: 07:52:42

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	96	82 - 121	-4.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	79	62 - 160	-21.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	110	85 - 117	9.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	95	85 - 118	-4.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	99	72 - 138	-1.0
13C-OCDD	M+2/M+4	0.89	0.76-1.02	179	96 - 415	-10.7
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	75	76 - 130	-25.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	77	77 - 130	-23.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	104	76 - 131	3.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	70 - 143	0.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	105	73 - 137	4.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	102	78 - 129	2.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	98	77 - 129	-2.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.2	7.8 - 12.7	-8.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
72675

Run #8 Filename P173843 #1 Samp: 1 Inj: 1 Acquired: 4-OCT-14 07:52:42
Processed: 6-OCT-14 11:54:14 LAB. ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:56	2.808e+03	3.626e+03	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:56	2.431e+04	1.480e+04	1.64	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:48	2.314e+04	1.435e+04	1.61	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:24	2.170e+04	1.707e+04	1.27	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:31	2.273e+04	1.744e+04	1.30	yes	no	1.001
6	Unk	2,3,4,6,7,8-HxCDF	36:60	2.125e+04	1.686e+04	1.26	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:44	1.942e+04	1.522e+04	1.28	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:57	1.928e+04	1.813e+04	1.06	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:23	1.557e+04	1.464e+04	1.06	yes	no	1.000
10	Unk	OCDF	42:57	2.338e+04	2.535e+04	0.92	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:40	2.238e+03	2.896e+03	0.77	yes	no	1.000
12	Unk	1,2,3,7,8-PeCDD	34:04	1.560e+04	9.880e+03	1.58	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	37:07	1.426e+04	1.152e+04	1.24	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:12	1.338e+04	1.056e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:26	1.478e+04	1.203e+04	1.23	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:53	1.205e+04	1.151e+04	1.05	yes	no	1.000
17	Unk	OCDD	42:44	1.842e+04	2.088e+04	0.88	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:54	3.150e+04	4.100e+04	0.77	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:55	4.472e+04	2.876e+04	1.56	yes	no	1.131
20	IS	13C-2,3,4,7,8-PeCDF	33:48	4.507e+04	2.860e+04	1.58	yes	no	1.161
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	1.982e+04	3.841e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	2.213e+04	4.263e+04	0.52	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	2.149e+04	4.152e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:43	1.882e+04	3.642e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:57	1.544e+04	3.442e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:23	1.297e+04	2.971e+04	0.44	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:39	2.343e+04	3.005e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	34:04	3.375e+04	2.171e+04	1.56	yes	no	1.170
29	IS	13C-1,2,3,4,7,8-HxCDD	37:06	2.835e+04	2.238e+04	1.27	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:11	2.699e+04	2.151e+04	1.26	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:53	2.357e+04	2.232e+04	1.06	yes	no	1.066
32	IS	13C-OCDD	42:43	3.427e+04	3.846e+04	0.89	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	29:06	2.346e+04	2.978e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:26	2.980e+04	2.393e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:40	5.487e+03				no	1.019

ALS ENVIRONMENTAL
10450 Stancliff, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
72675

Run #8 Filename P173843 Samp: 1 Inj: 1 Acquired: 4-OCT-14 07:52:42
Processed: 6-OCT-14 11:54:14 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.19e+05	1.84e+02	2.8e+03	6.61e+05	7.04e+02	9.4e+02
2	1,2,3,7,8-PeCDF	4.72e+06	2.36e+02	2.0e+04	2.89e+06	5.96e+02	4.8e+03
3	2,3,4,7,8-PeCDF	4.75e+06	2.36e+02	2.0e+04	2.96e+06	5.96e+02	5.0e+03
4	1,2,3,4,7,8-HxCDF	4.85e+06	2.84e+02	1.7e+04	3.80e+06	7.60e+01	5.0e+04
5	1,2,3,6,7,8-HxCDF	4.82e+06	2.84e+02	1.7e+04	3.69e+06	7.60e+01	4.9e+04
6	2,3,4,6,7,8-HxCDF	4.62e+06	2.84e+02	1.6e+04	3.70e+06	7.60e+01	4.9e+04
7	1,2,3,7,8,9-HxCDF	4.04e+06	2.84e+02	1.4e+04	3.20e+06	7.60e+01	4.2e+04
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	2.16e+03	1.9e+03	3.97e+06	1.92e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.05e+06	2.16e+03	1.4e+03	2.86e+06	1.92e+03	1.5e+03
10	OCDF	3.96e+06	6.40e+01	6.2e+04	4.24e+06	4.68e+02	9.1e+03
11	2,3,7,8-TCDD	4.42e+05	2.76e+02	1.6e+03	5.49e+05	2.40e+02	2.3e+03
12	1,2,3,7,8-PeCDD	3.22e+06	5.96e+02	5.4e+03	2.02e+06	2.40e+02	8.4e+03
13	1,2,3,4,7,8-HxCDD	3.23e+06	1.08e+02	3.0e+04	2.55e+06	1.36e+02	1.9e+04
14	1,2,3,6,7,8-HxCDD	2.99e+06	1.08e+02	2.8e+04	2.36e+06	1.36e+02	1.7e+04
15	1,2,3,7,8,9-HxCDD	3.21e+06	1.08e+02	3.0e+04	2.57e+06	1.36e+02	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	2.60e+02	9.4e+03	2.29e+06	6.80e+01	3.4e+04
17	OCDD	3.12e+06	6.40e+01	4.9e+04	3.54e+06	1.36e+02	2.6e+04
18	13C-2,3,7,8-TCDF	5.81e+06	7.64e+02	7.6e+03	7.57e+06	8.12e+02	9.3e+03
19	13C-1,2,3,7,8-PeCDF	8.60e+06	3.68e+02	2.3e+04	5.62e+06	2.16e+02	2.6e+04
20	13C-2,3,4,7,8-PeCDF	9.16e+06	3.68e+02	2.5e+04	5.83e+06	2.16e+02	2.7e+04
21	13C-1,2,3,4,7,8-HxCDF	4.41e+06	1.16e+02	3.8e+04	8.54e+06	5.40e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	4.64e+06	1.16e+02	4.0e+04	9.01e+06	5.40e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	4.57e+06	1.16e+02	3.9e+04	8.98e+06	5.40e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.95e+06	1.16e+02	3.4e+04	7.67e+06	5.40e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.30e+06	1.00e+03	3.3e+03	7.36e+06	1.12e+03	6.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	1.00e+03	2.5e+03	5.79e+06	1.12e+03	5.2e+03
27	13C-2,3,7,8-TCDD	4.45e+06	2.47e+03	1.8e+03	5.65e+06	1.16e+03	4.9e+03
28	13C-1,2,3,7,8-PeCDD	6.98e+06	2.64e+02	2.6e+04	4.47e+06	9.20e+01	4.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.34e+06	6.92e+02	9.2e+03	4.97e+06	5.88e+02	8.5e+03
30	13C-1,2,3,6,7,8-HxCDD	5.96e+06	6.92e+02	8.6e+03	4.80e+06	5.88e+02	8.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.73e+06	3.28e+02	1.4e+04	4.48e+06	2.72e+02	1.6e+04
32	13C-OCDD	5.78e+06	6.40e+01	9.0e+04	6.35e+06	1.96e+02	3.2e+04
33	13C-1,2,3,4-TCDD	4.50e+06	2.47e+03	1.8e+03	5.67e+06	1.16e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	6.44e+06	6.92e+02	9.3e+03	5.19e+06	5.88e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	1.08e+06	5.68e+02	1.9e+03			

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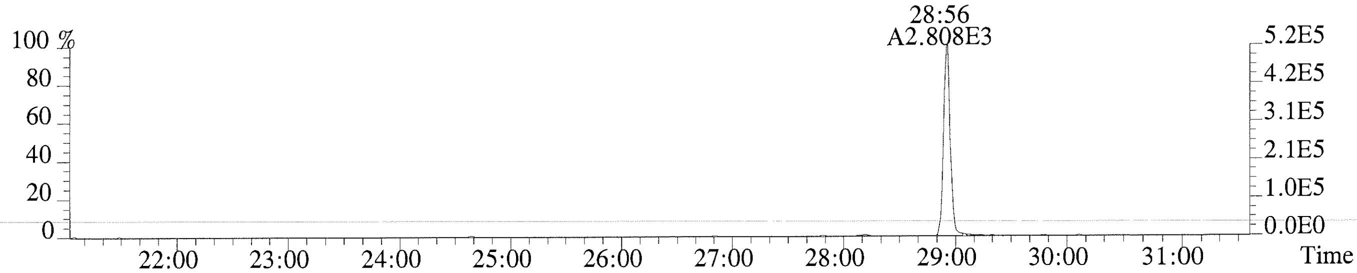
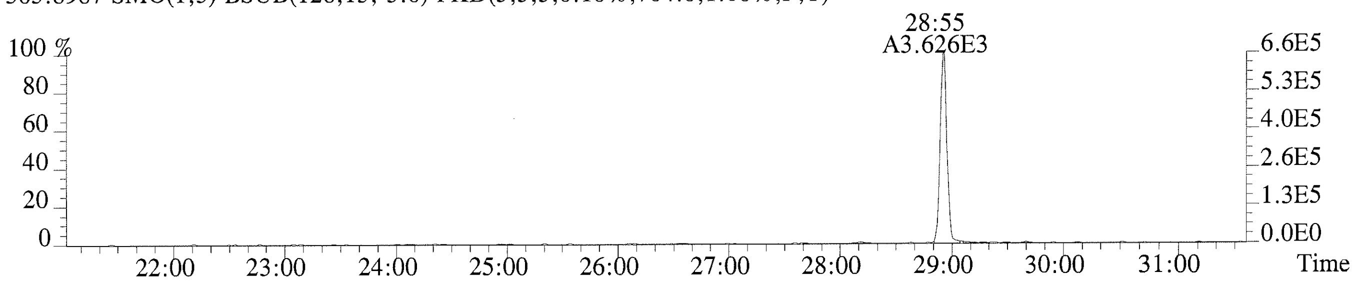
XLSN

File:P173843 #1-815 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

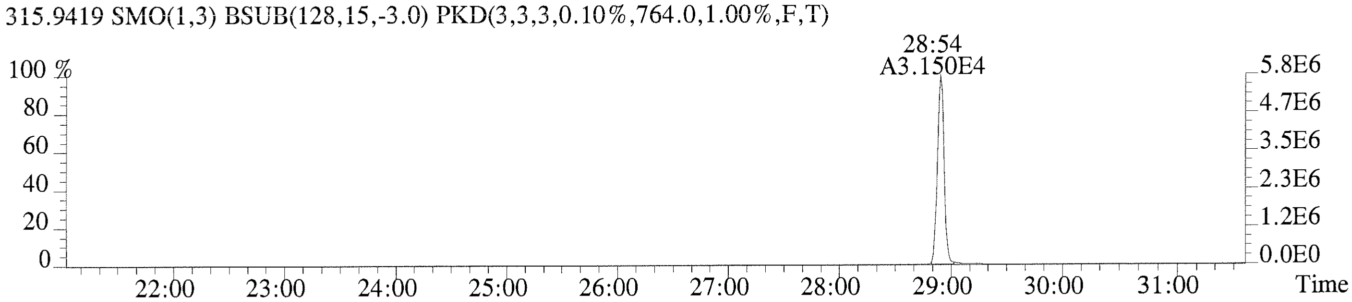
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



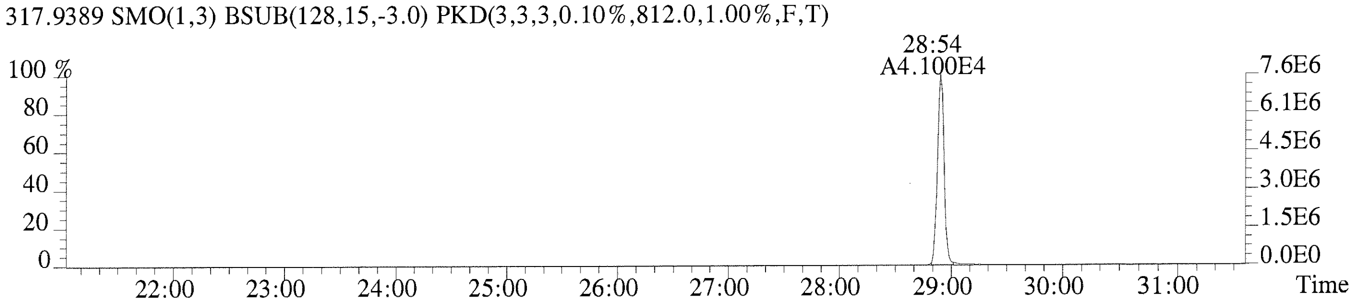
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



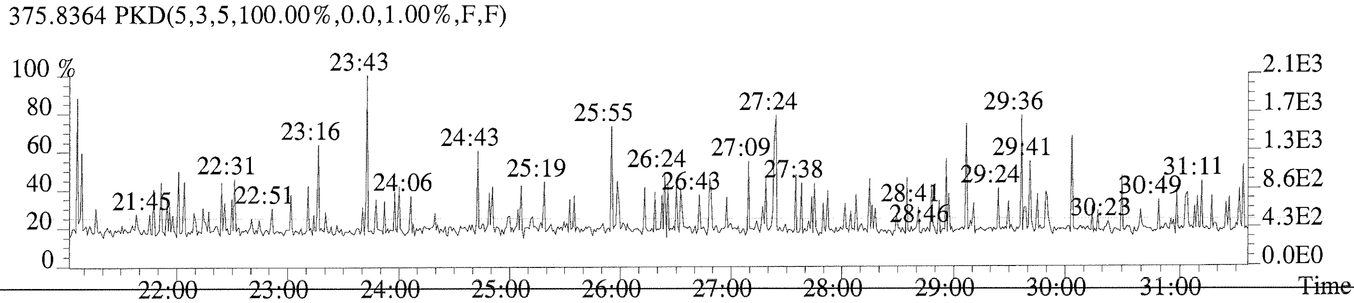
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



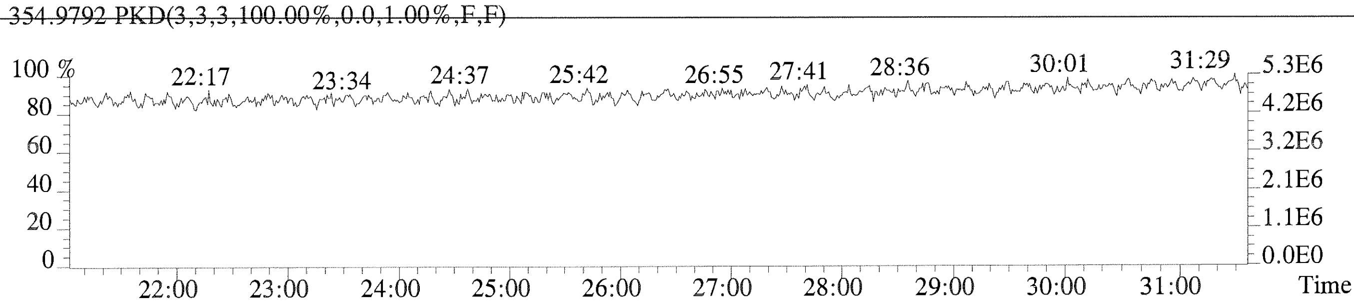
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

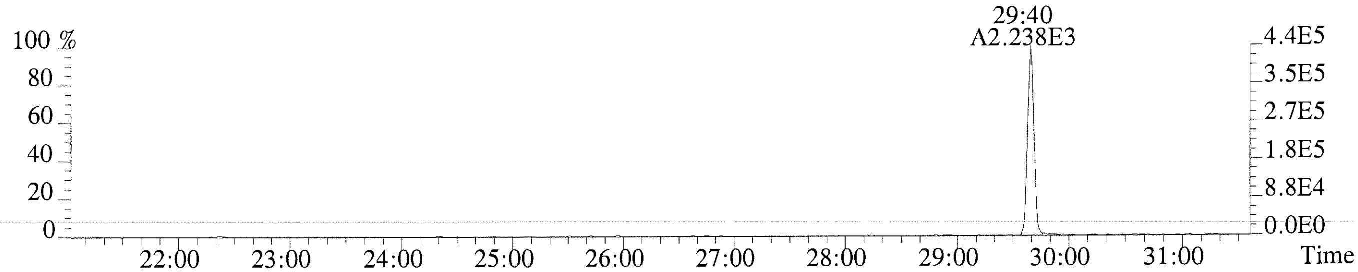


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

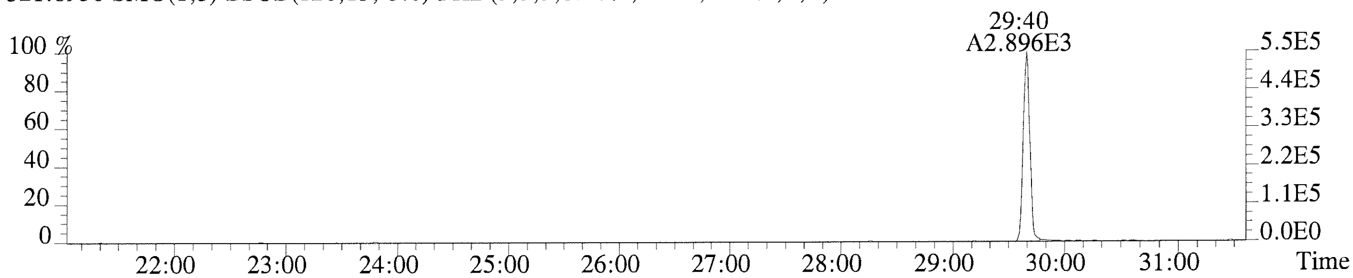


File:P173843 #1-815 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

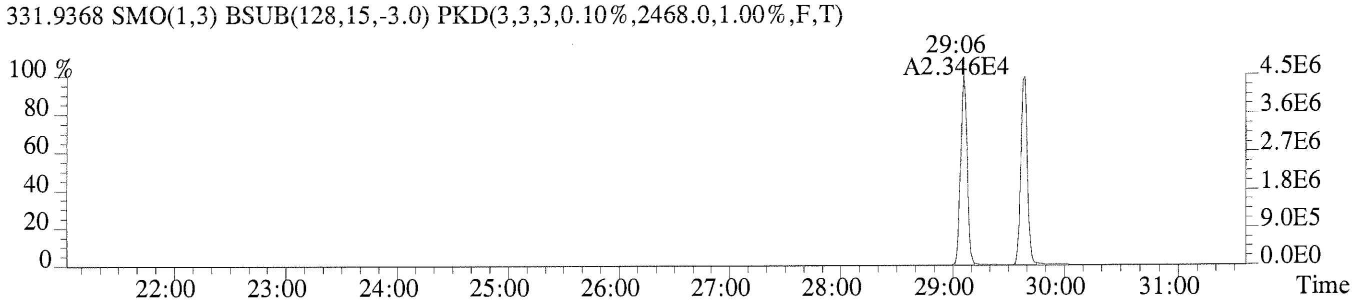
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



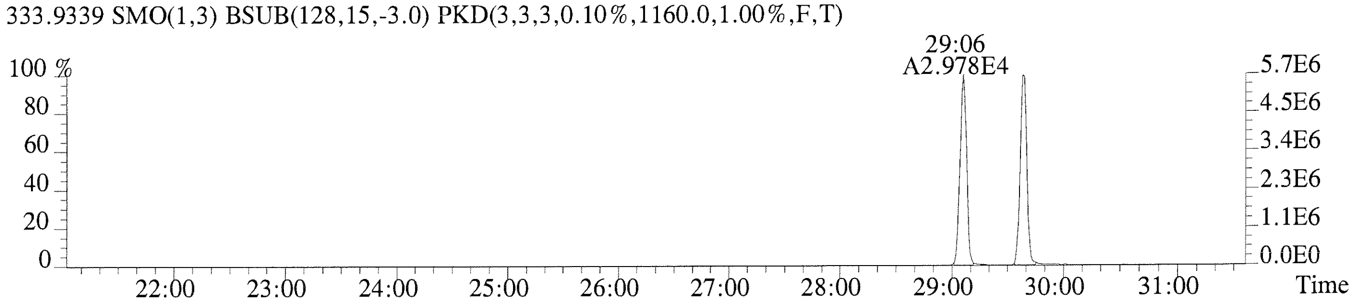
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



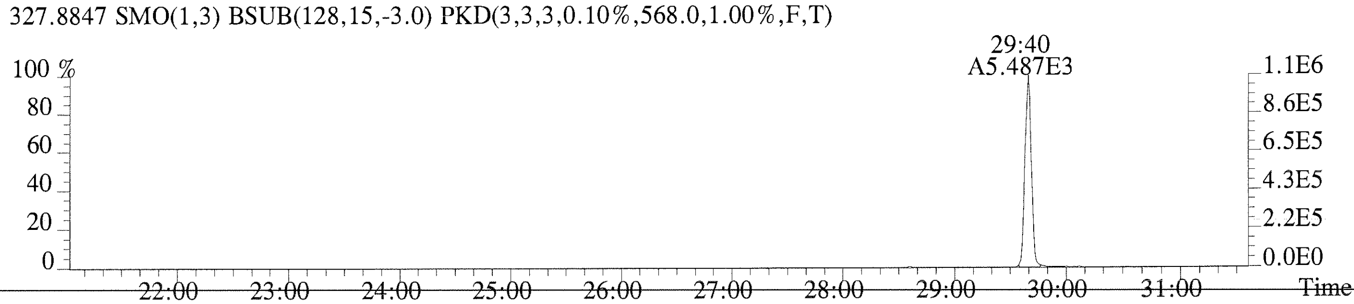
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



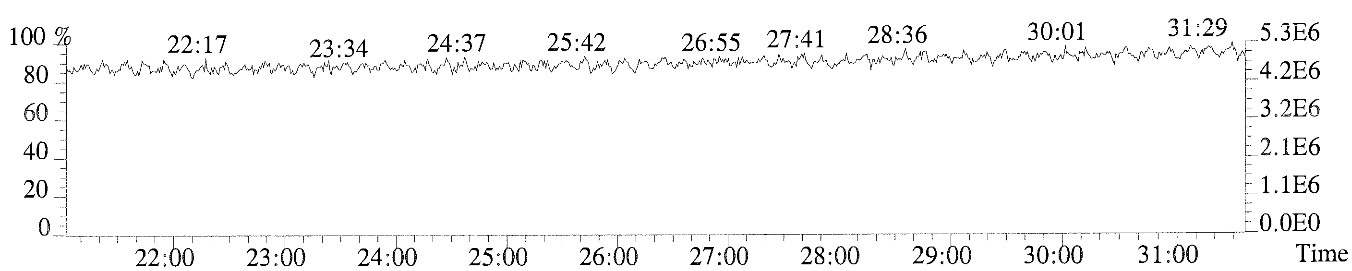
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



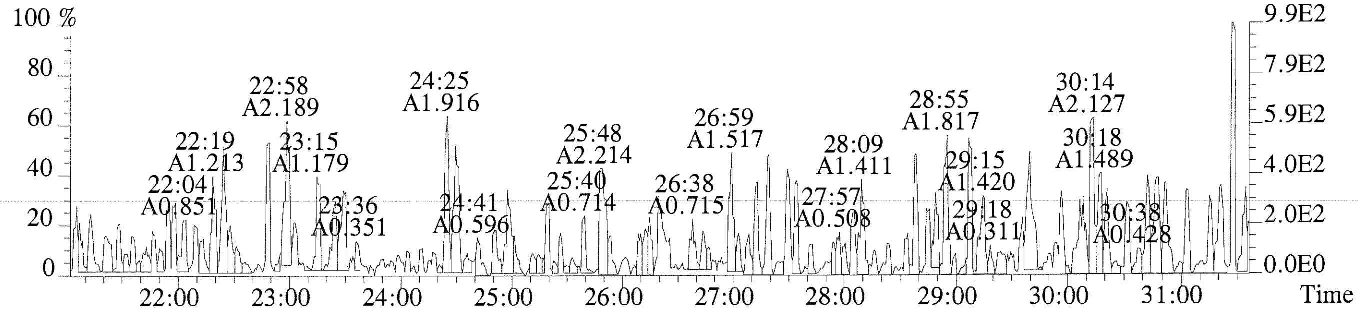
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



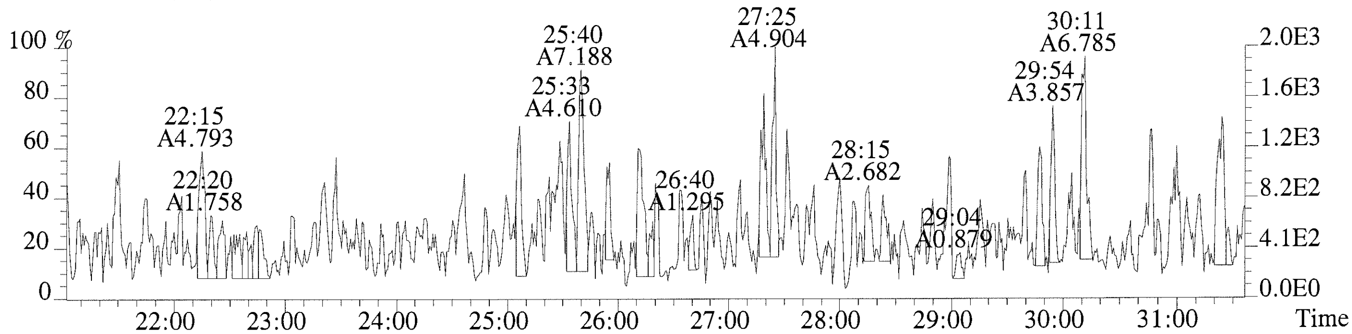
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



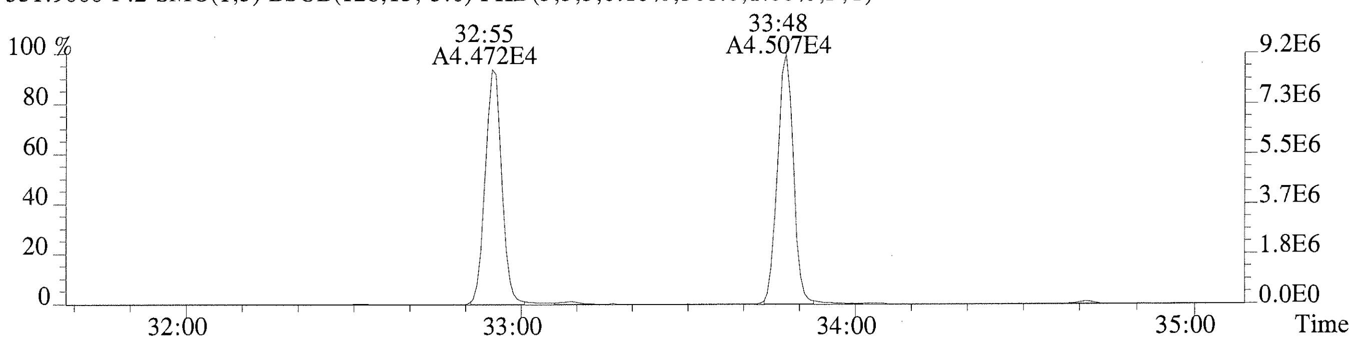
File:P173843 #1-815 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,48.0,1.00%,F,T)



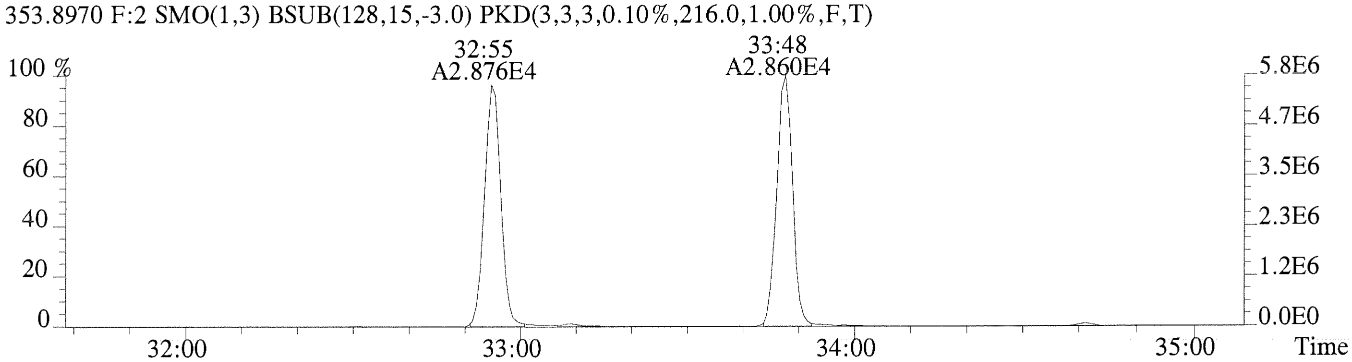
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



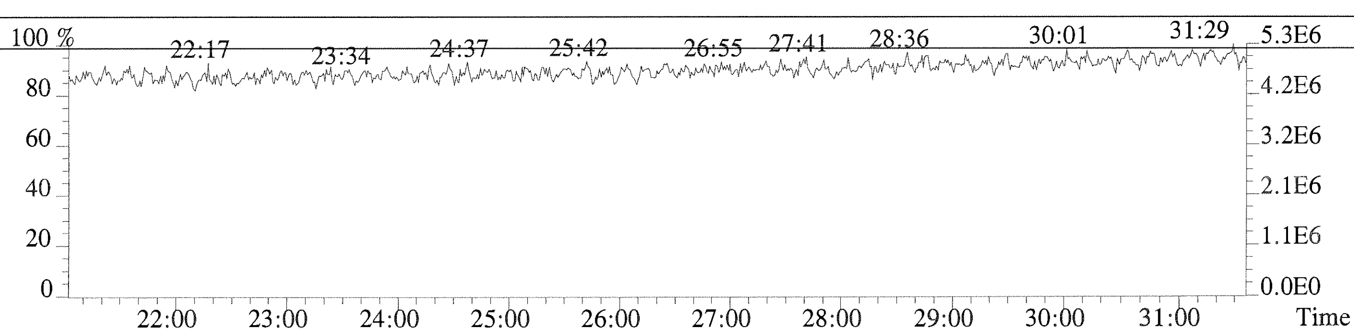
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



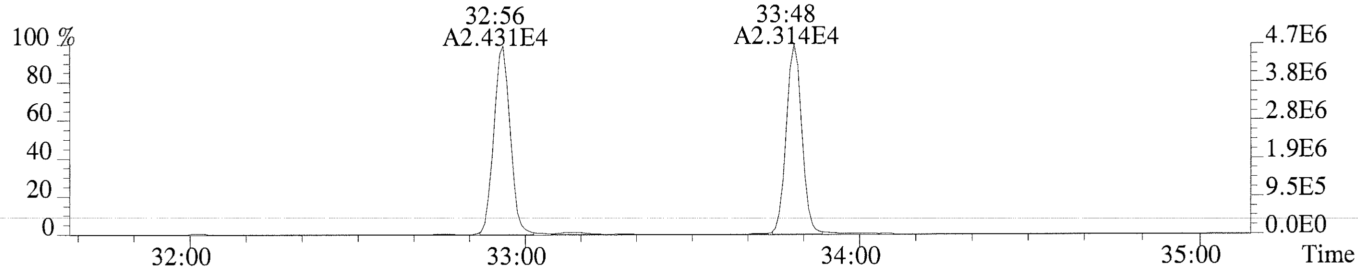
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



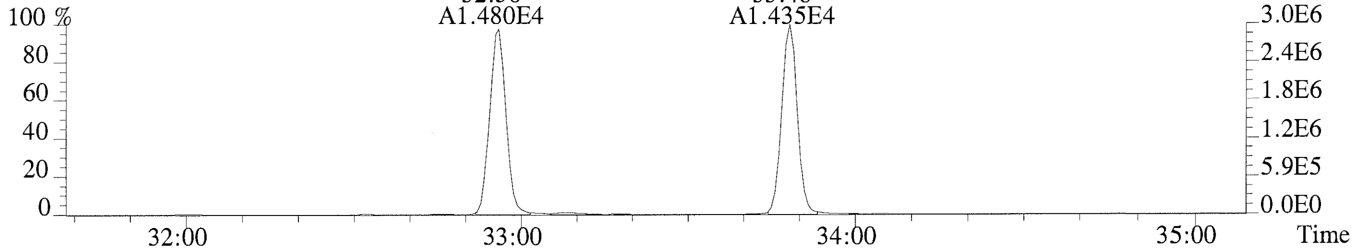
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



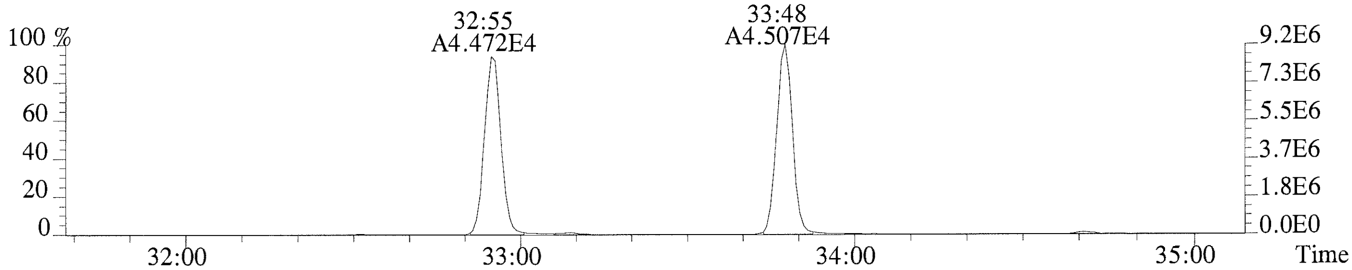
File:P173843 #1-319 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



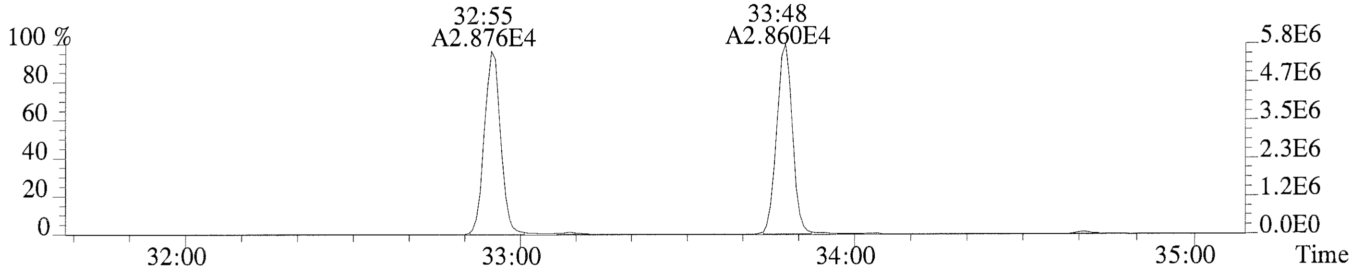
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



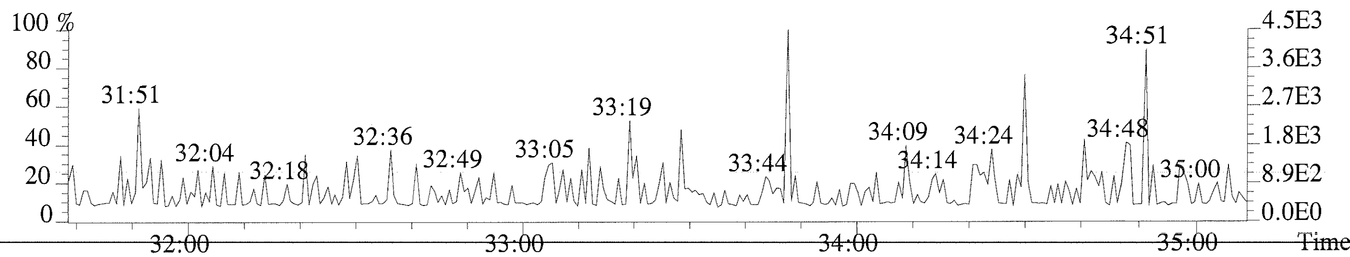
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



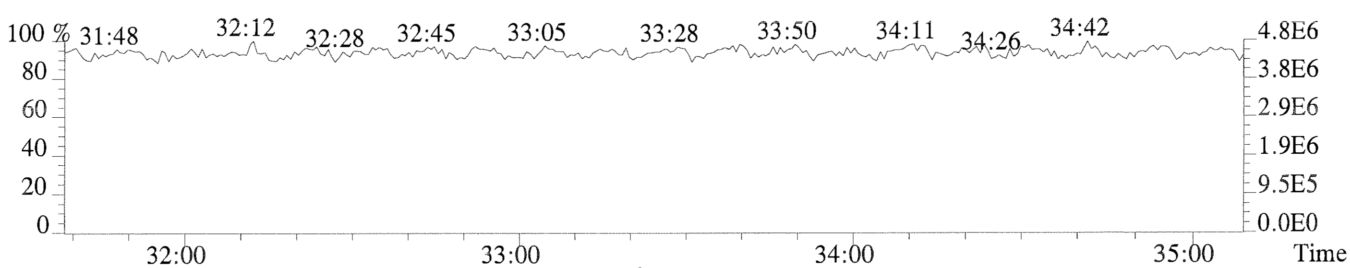
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



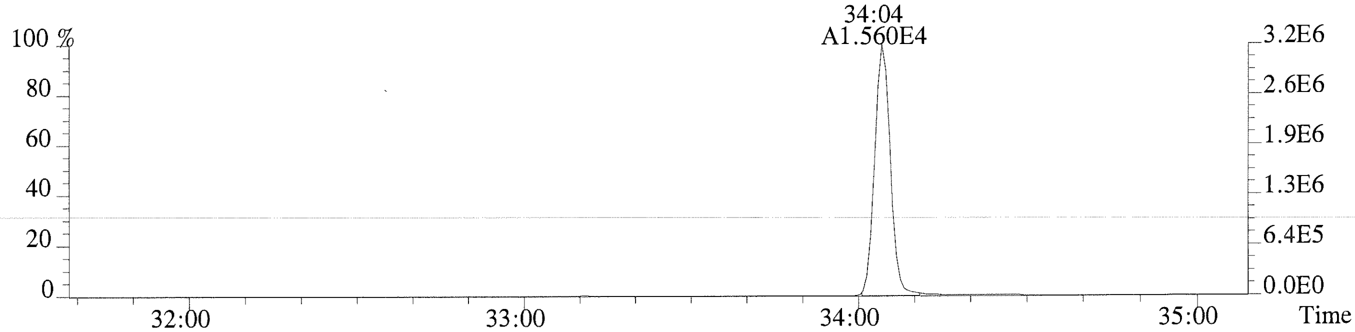
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



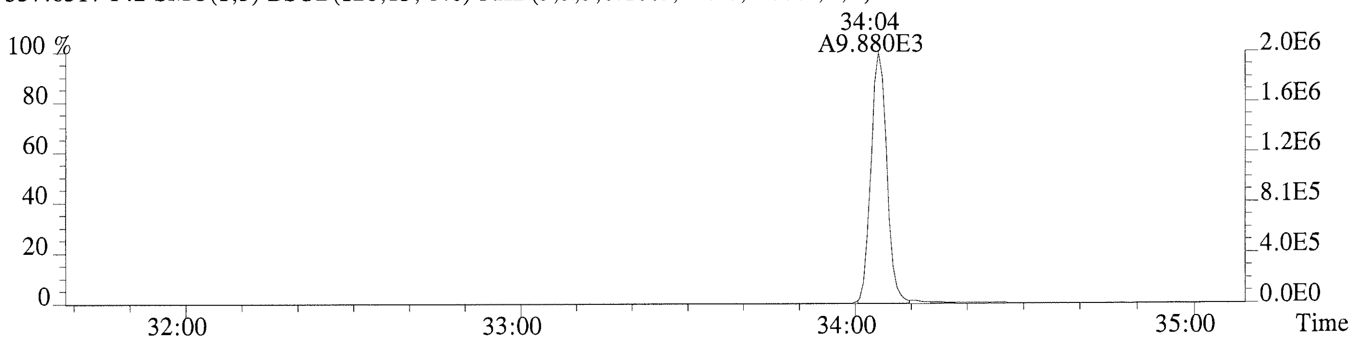
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



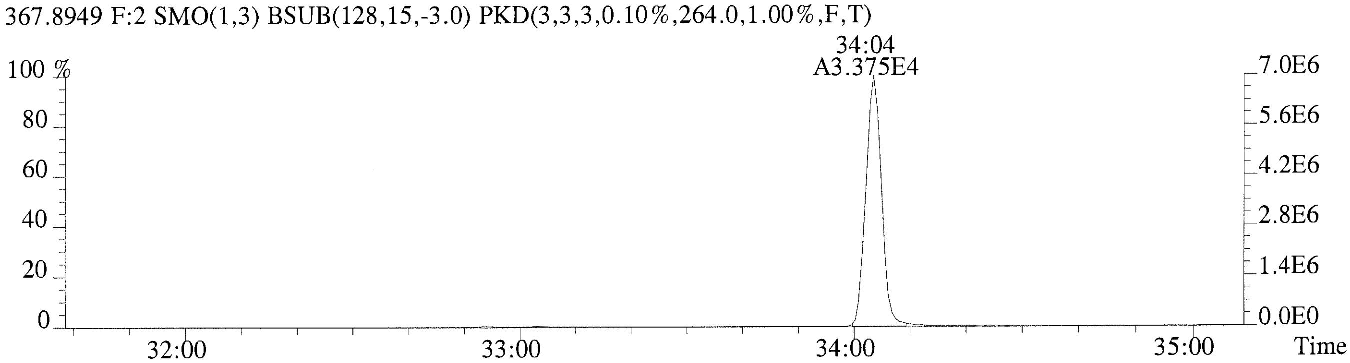
File:P173843 #1-319 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



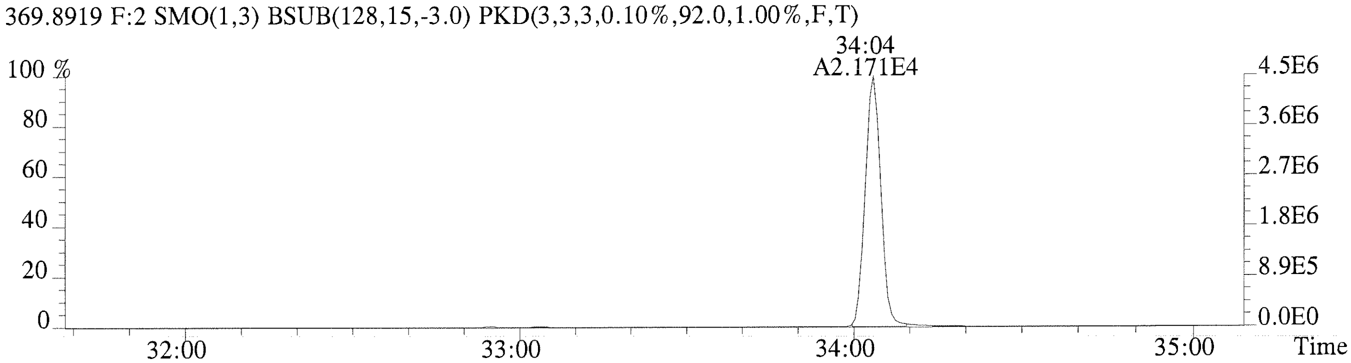
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



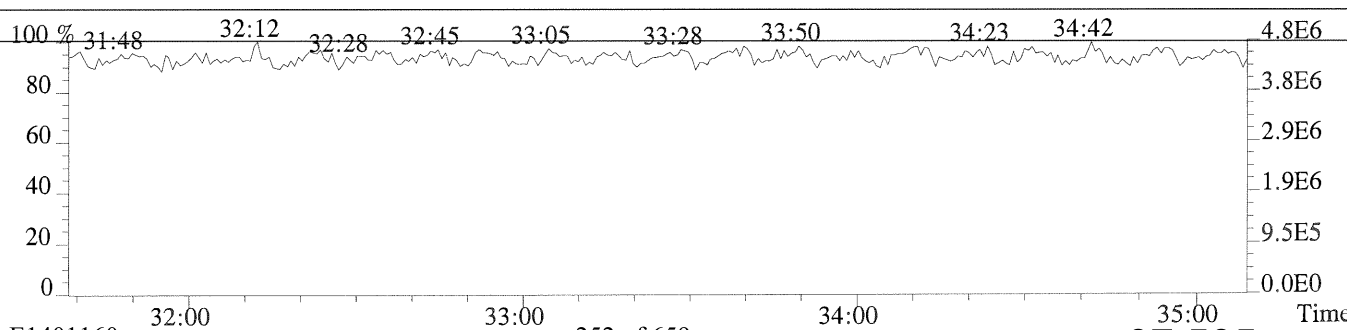
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,92.0,1.00%,F,T)

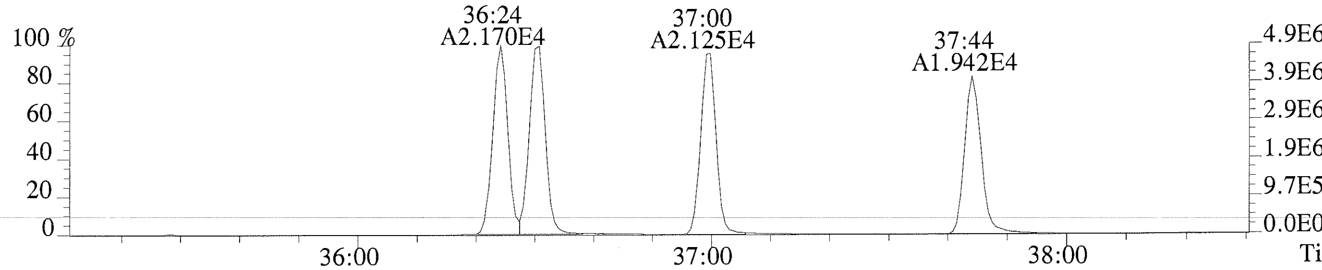


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

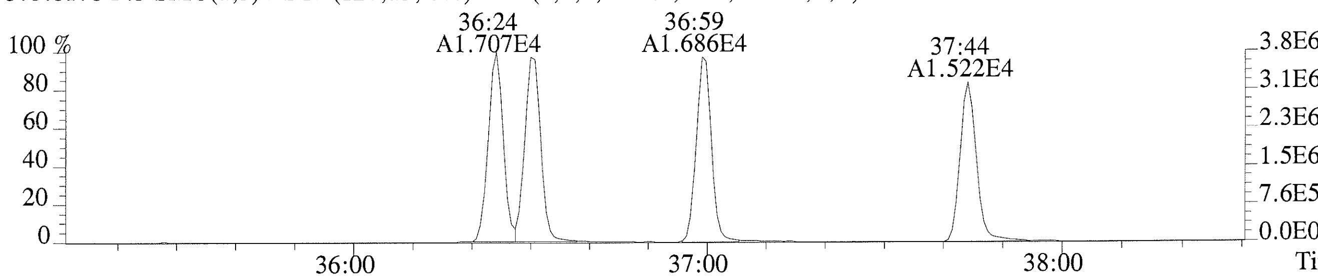


File:P173843 #1-302 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

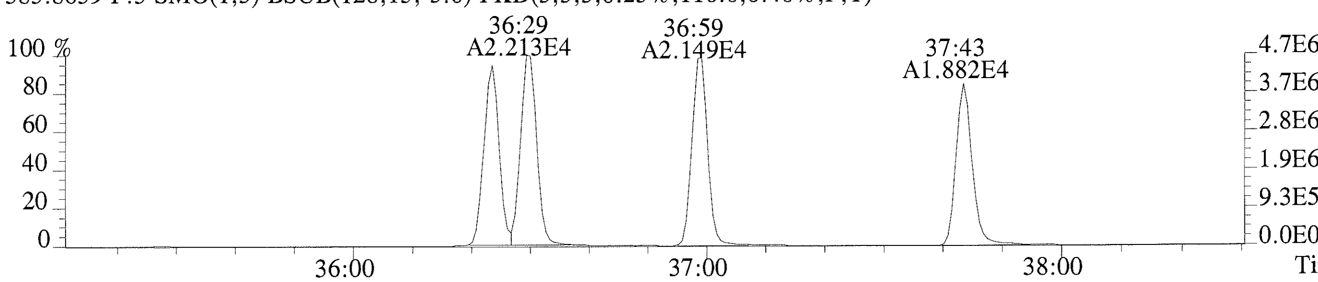
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



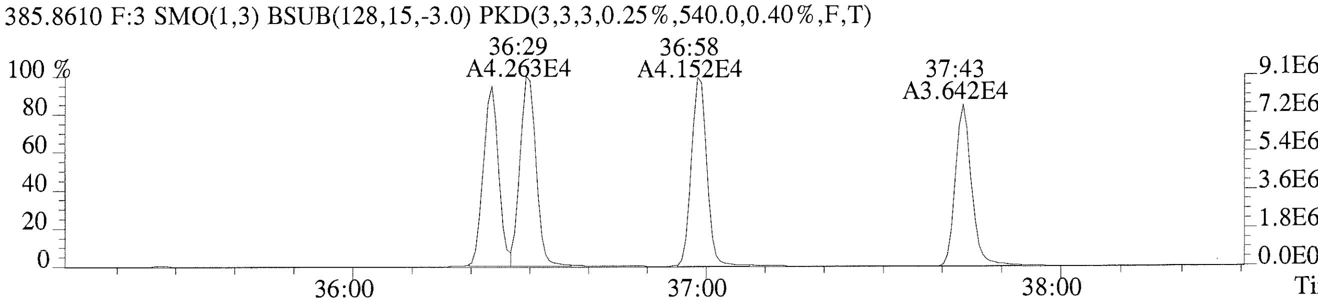
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



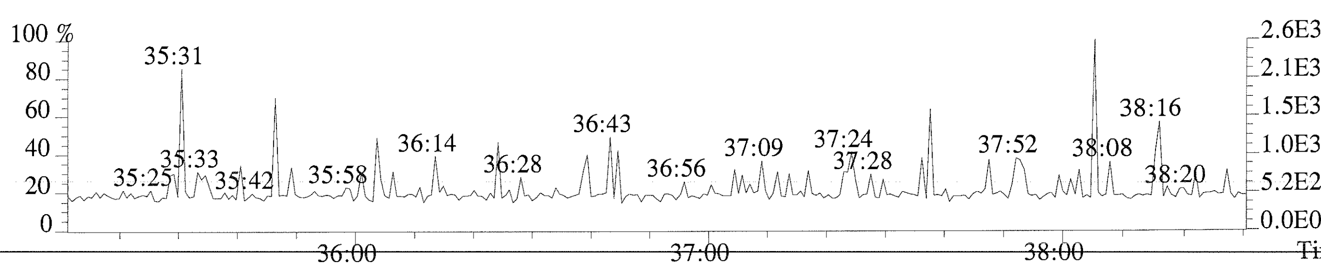
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,116.0,0.40%,F,T)



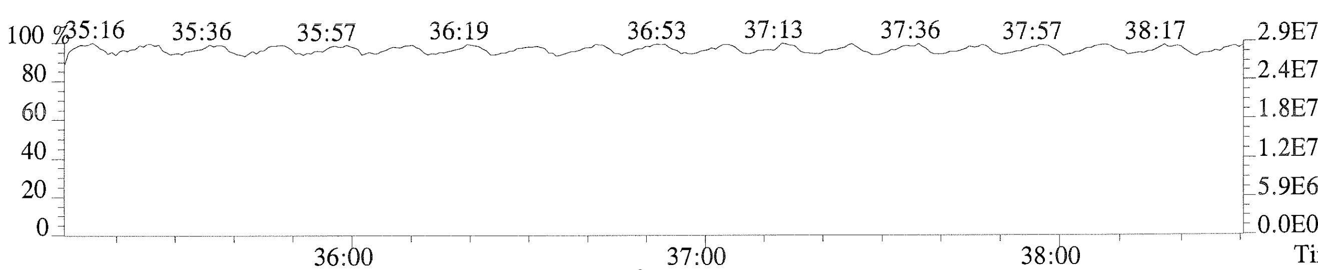
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



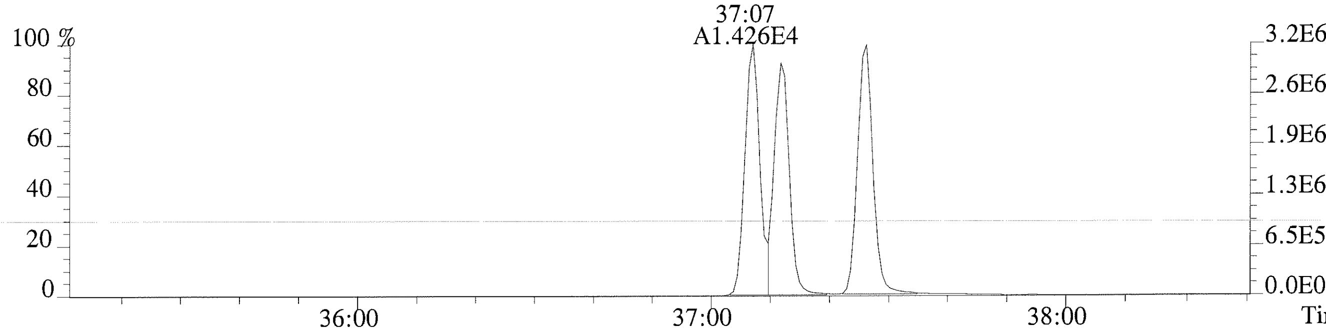
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



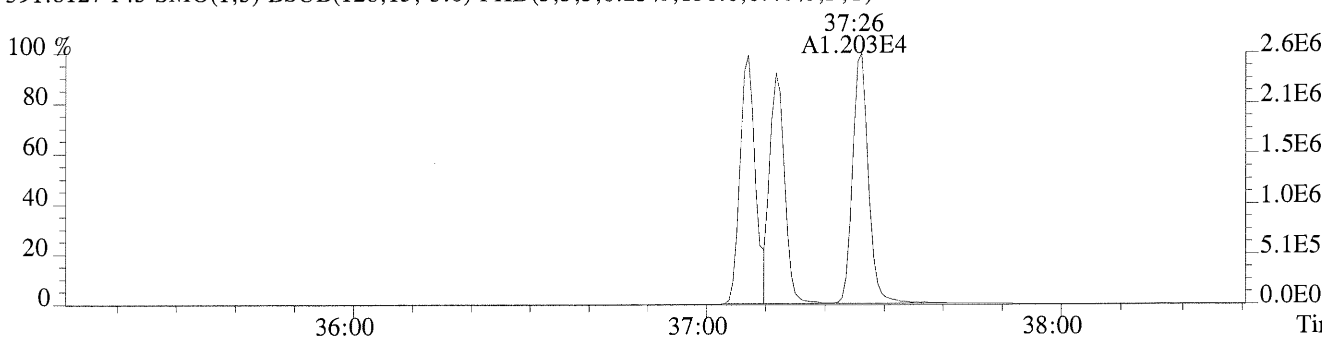
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



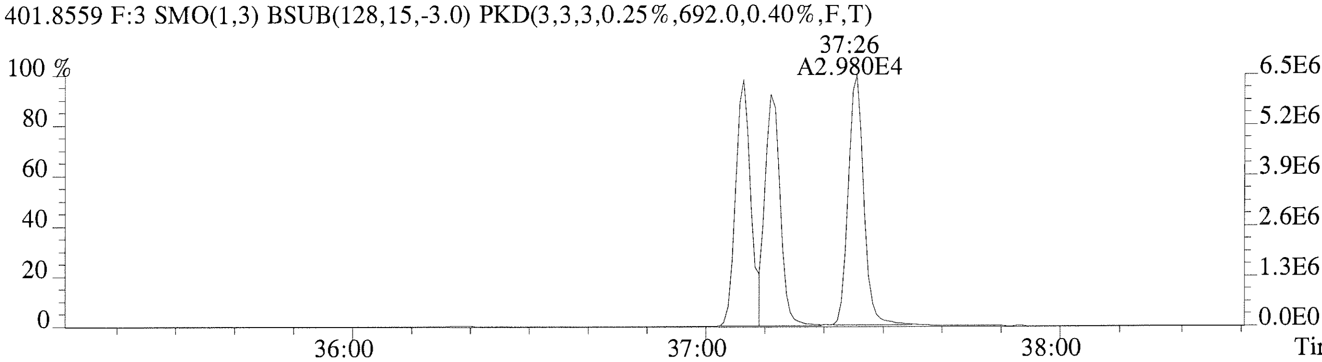
File:P173843 #1-302 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



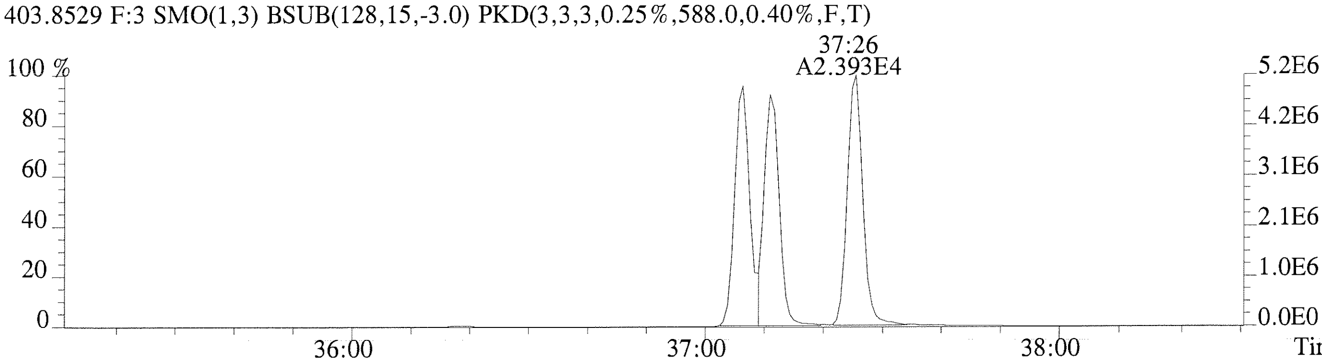
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



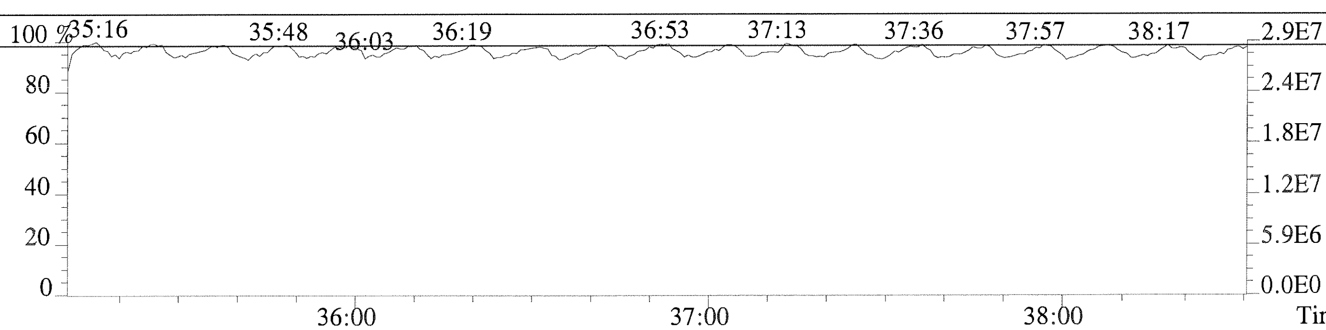
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)

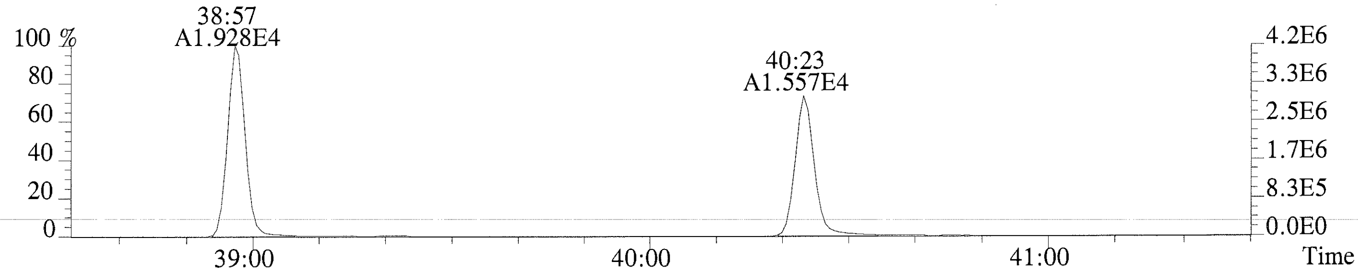


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

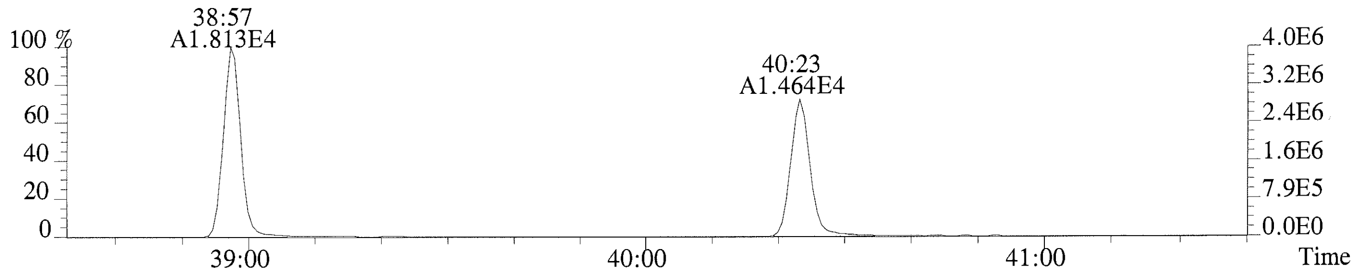


File:P173843 #1-269 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

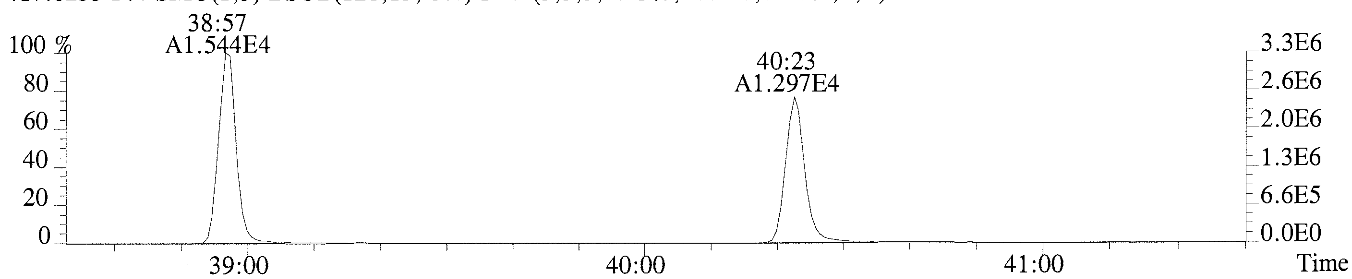
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.50%,F,T)



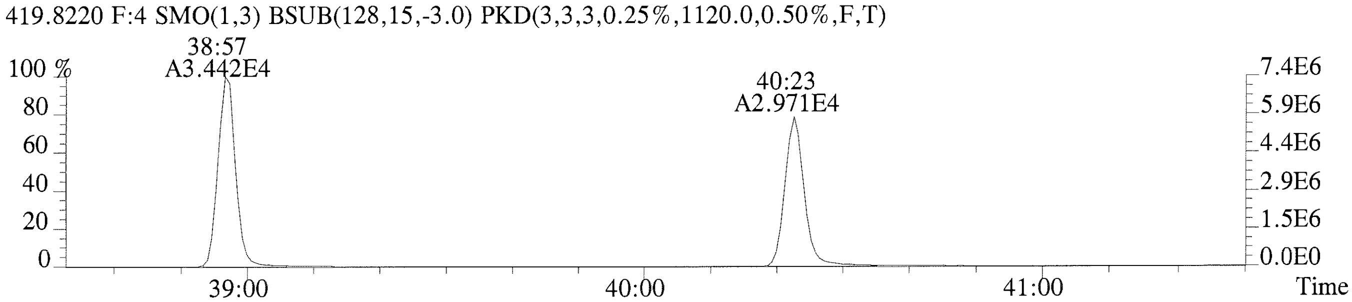
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.50%,F,T)



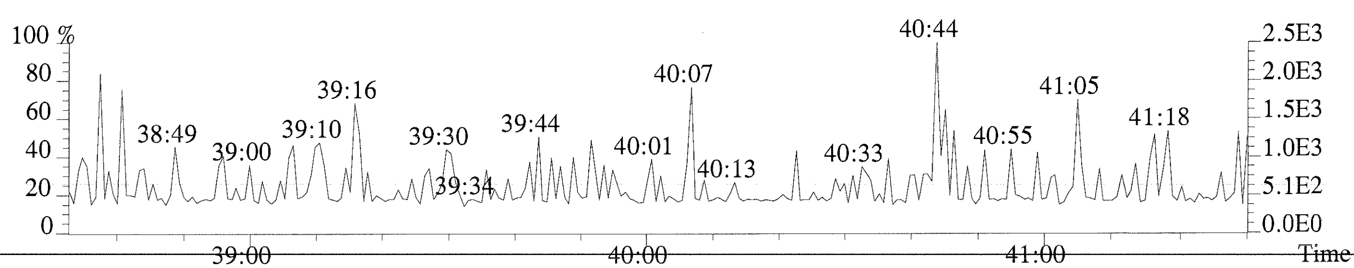
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



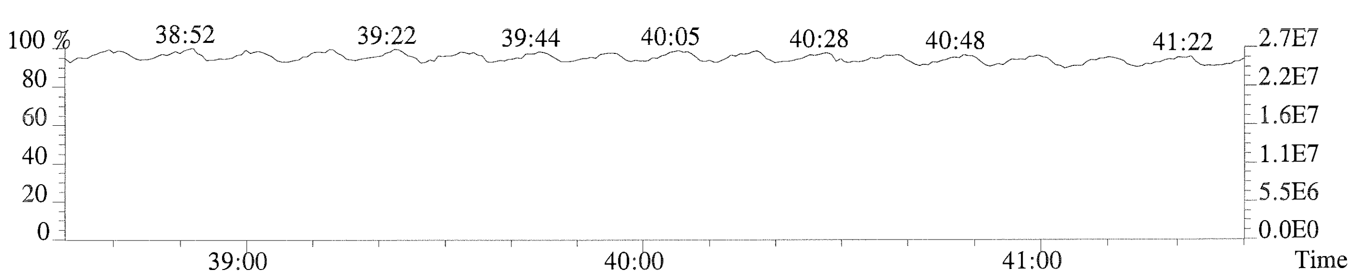
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.50%,F,T)



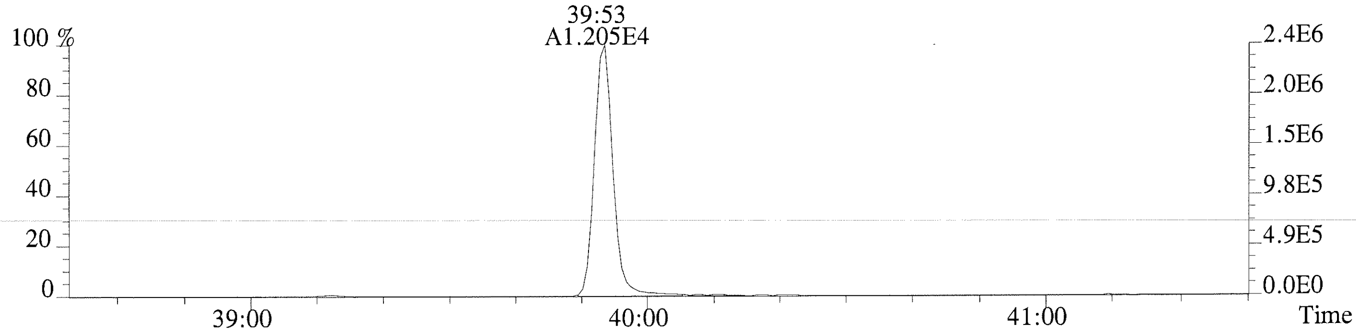
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



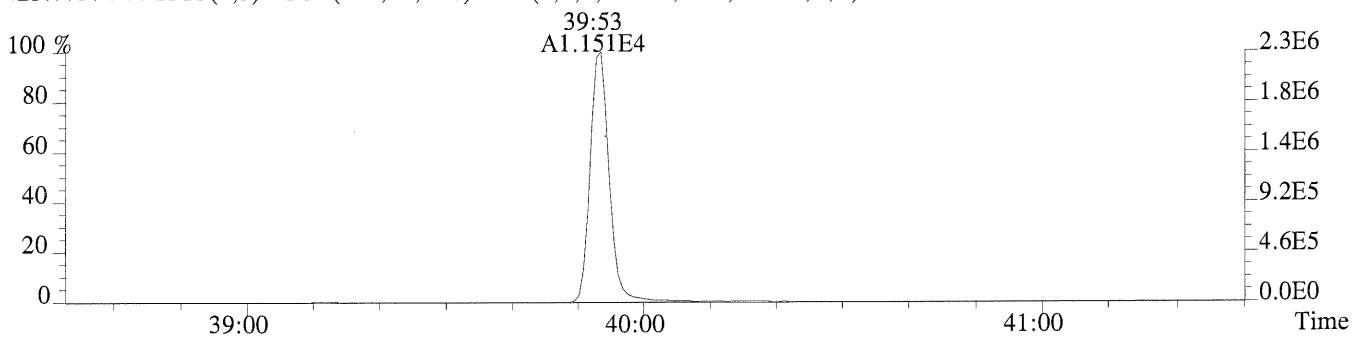
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



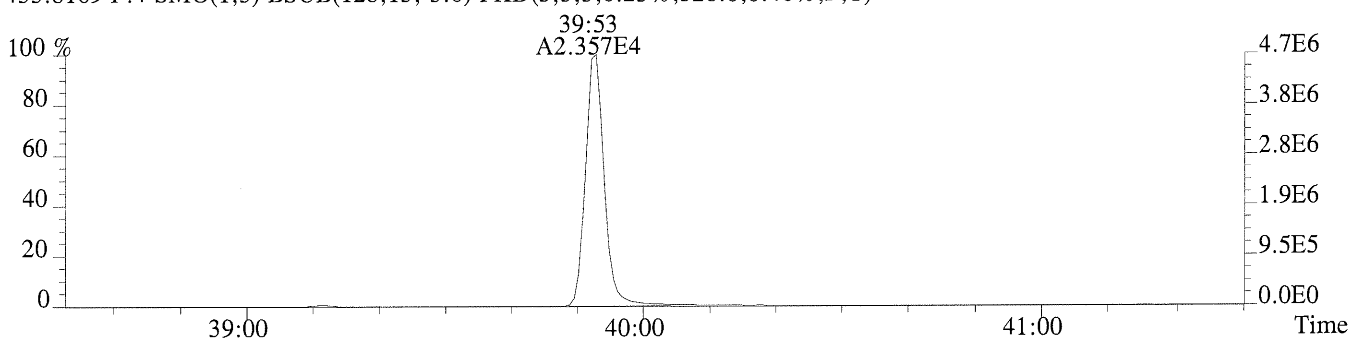
File:P173843 #1-269 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



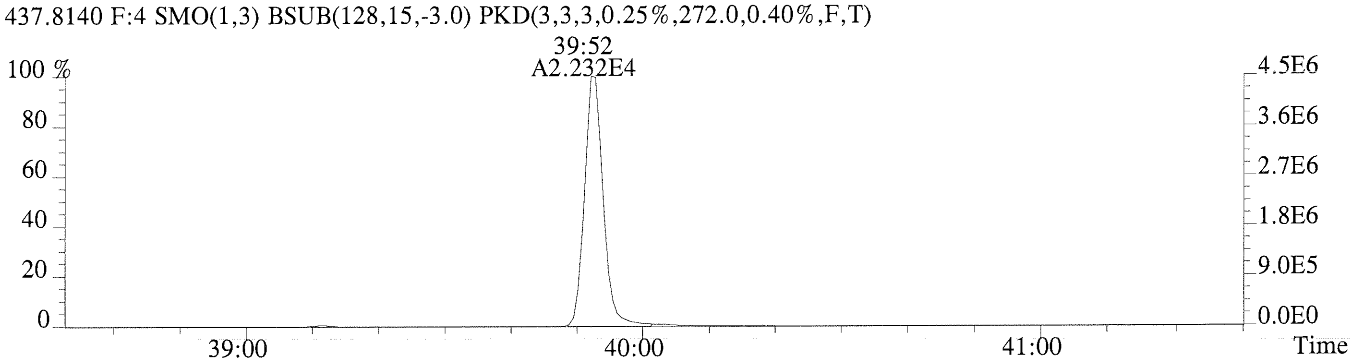
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



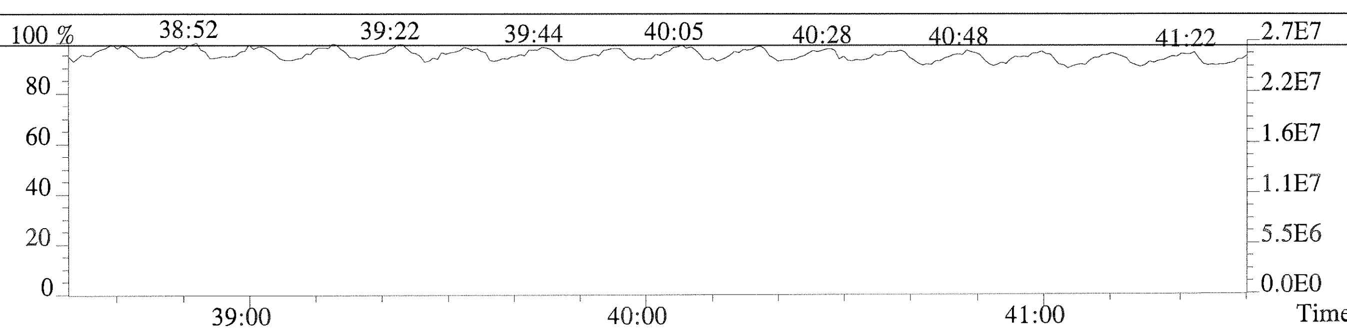
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



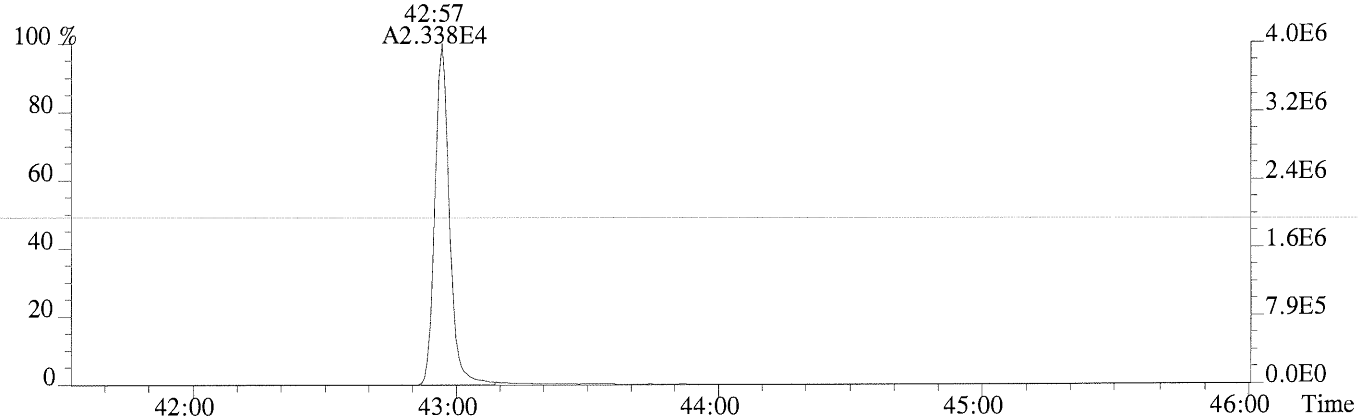
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



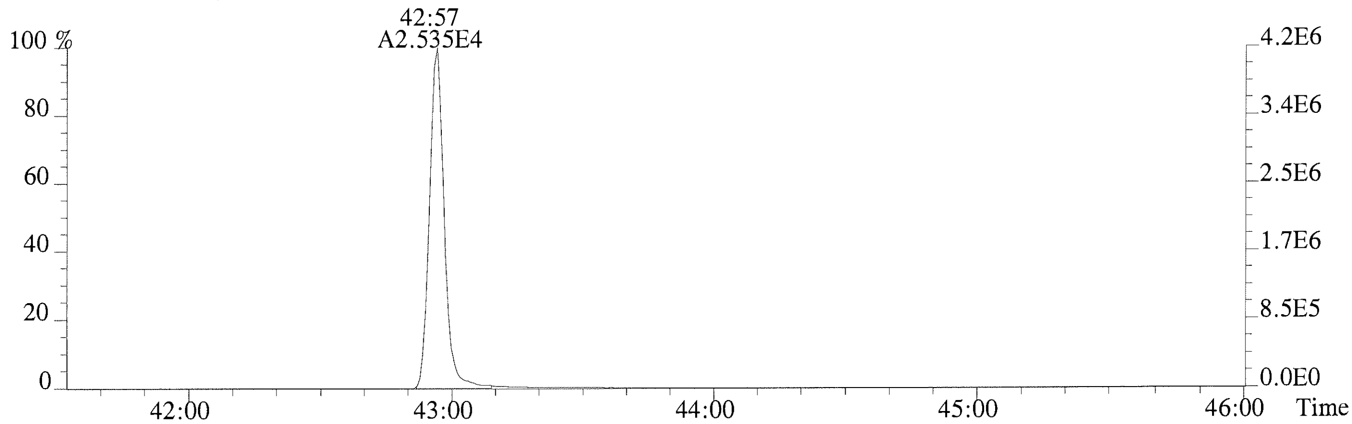
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



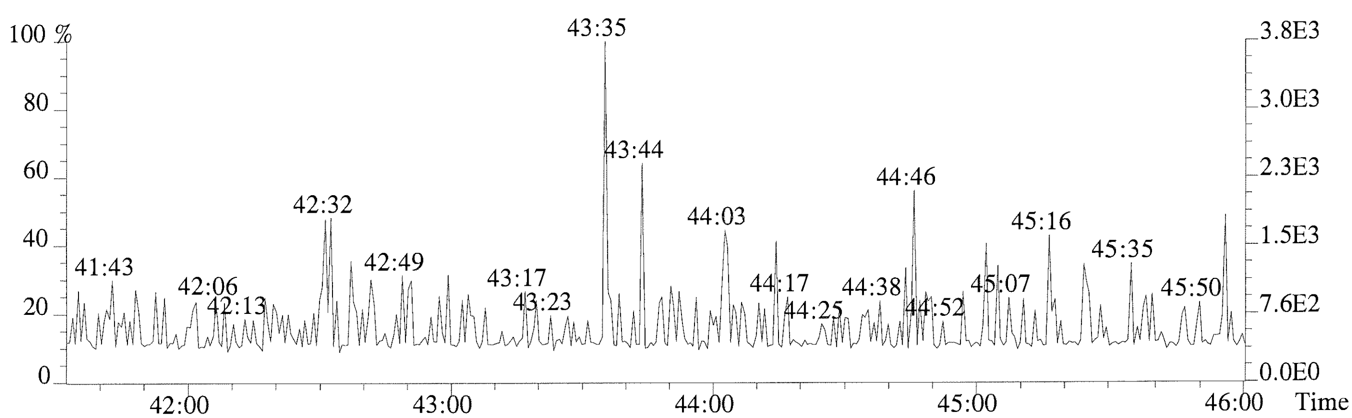
File:P173843 #1-411 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,64.0,0.40%,F,T)



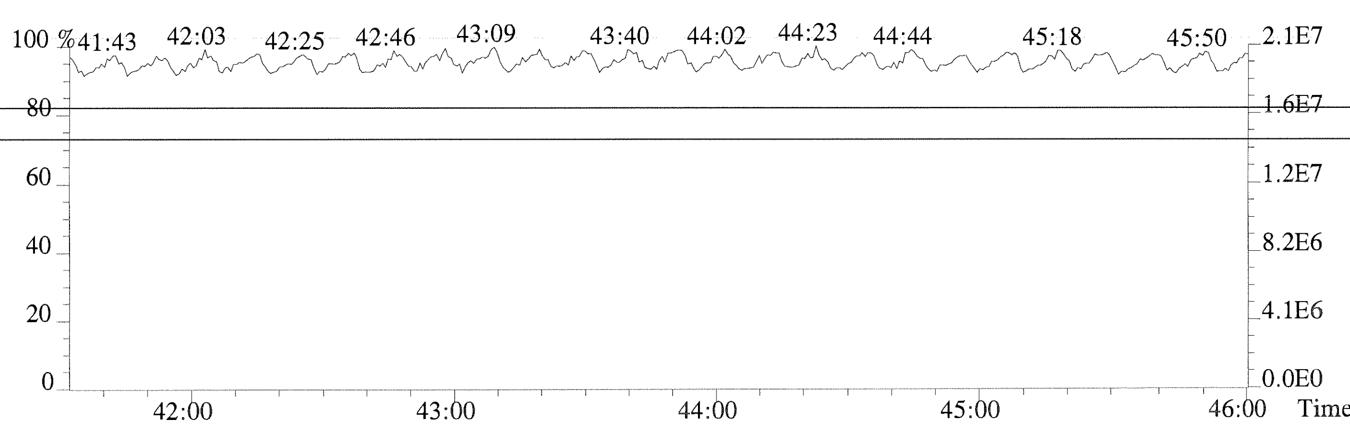
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



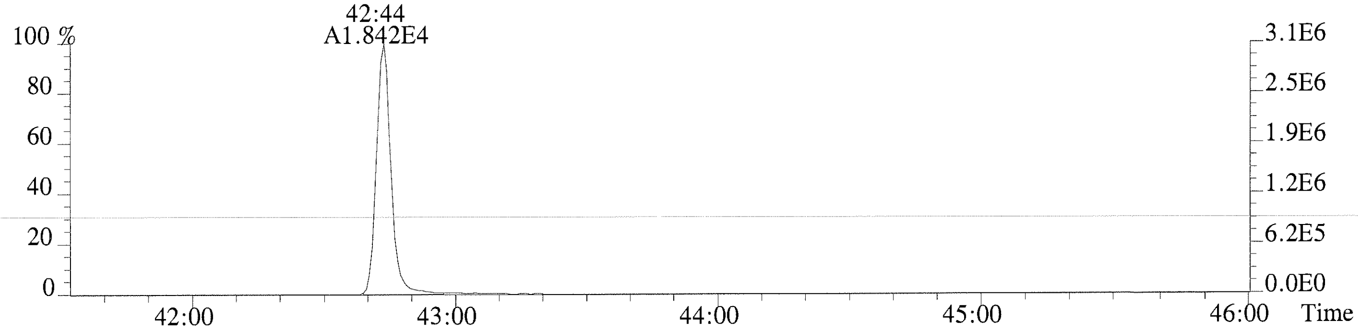
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



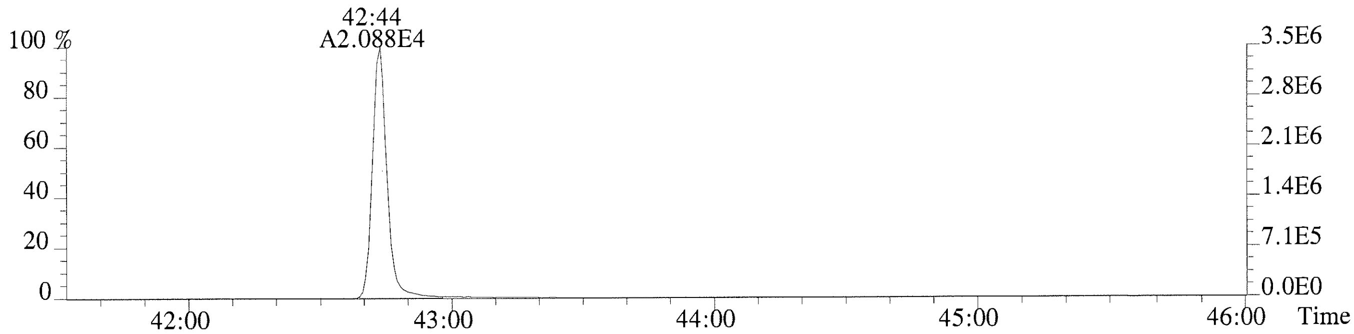
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



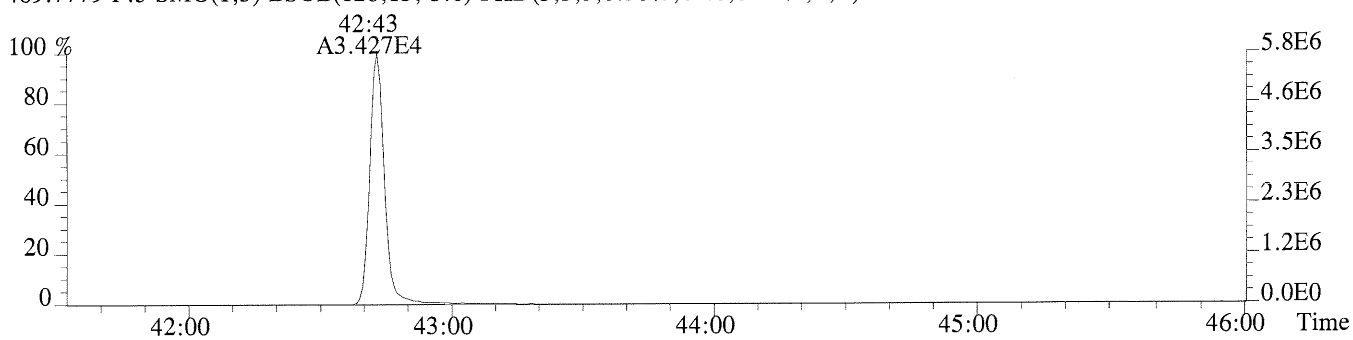
File:P173843 #1-411 Acq: 4-OCT-2014 07:52:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,64.0,0.40%,F,T)



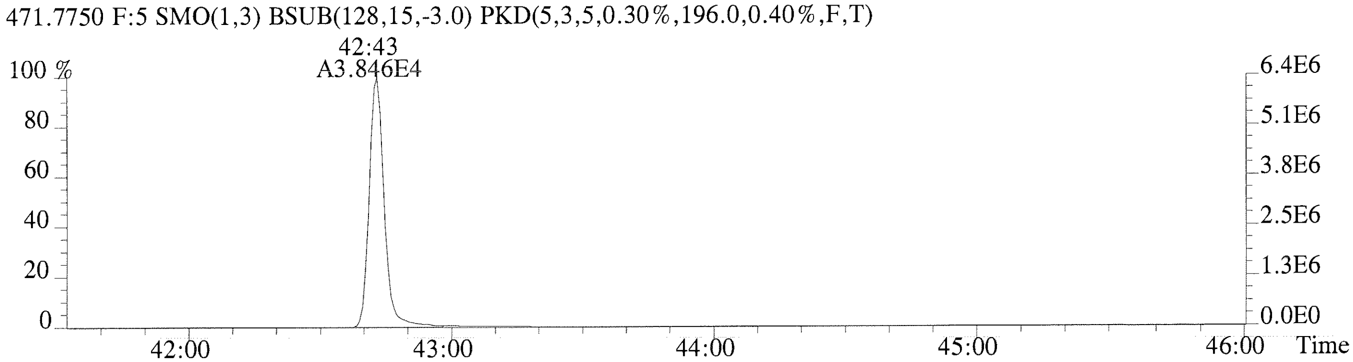
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



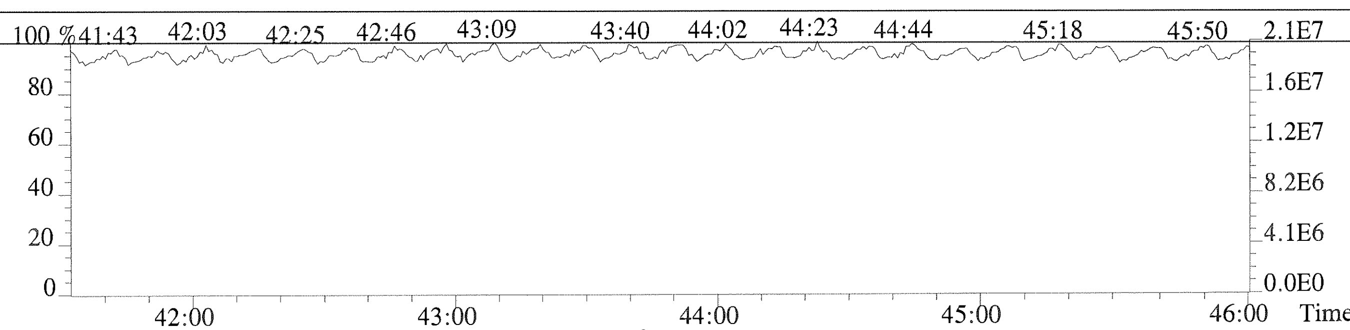
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,64.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P174024-P174036

Date: 10/11/14

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	Avg	AVG
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature]　　Second QC: LKL

ALS ENVIRONMENTAL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL   Contract:

Lab Code: Episode No.:   SDG No.:

GC Column: DB-5MSUI   ID: 0.25 (mm)   Instrument ID: E-HRMS-03

Init. Calib. Date: 03/25/14

Init. Calib.Times: 16:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P174025	11-OCT-14	02:55:25
72675	CS3	P174024	11-OCT-14	02:07:17
72675	CS3	P174036	11-OCT-14	11:57:38
METHOD BLANK	DO NOT USE	P174026	11-OCT-14	03:43:32
METHOD BLANK	EQ1400620-01	P174027	11-OCT-14	04:31:40
BJ12LAA05-SP-5	E1401177-005	P174028	11-OCT-14	05:19:49
BJ12LAA05-SP-6	E1401177-006	P174029	11-OCT-14	06:07:56
BJ12LAA05-SP-6-D	E1401177-007	P174030	11-OCT-14	06:56:02
BJ12LAA05-SP-7	E1401177-008	P174031	11-OCT-14	07:44:10
BJ12LAA05-SP-8	E1401177-009	P174032	11-OCT-14	08:32:17
BJ12LAA05-SP-9	E1401177-010	P174033	11-OCT-14	09:33:37
BJ12LAA05-SP-10	E1401177-011	P174034	11-OCT-14	10:21:23
LCS	EQ1400624-02	P174035	11-OCT-14	11:09:31

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1141011.SPL

Last Modified: Saturday, October 11, 2014 12:09:32 Central Daylight Time

Printed: Saturday, October 11, 2014 15:02:43 Central Daylight Time

Page Position (1, 1)

e: P174024 cal e: P174024res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/11/14	02:07	P174024	CS3	72675	LL	HRMS check 15:04	8290cas
2		02:55	P174025	WINDOW DEFINE	63680			8290cas
3		03:43	P174026	EQ1400620-01	MB			8290cas
4		04:31	P174027	EQ1400620-01	MB			8290cas
5		05:19	P174028	E1401177-005	E1401177-005			8290cas
6		06:07	P174029	E1401177-006	E1401177-006			8290cas
7		06:56	P174030	E1401177-007	E1401177-007			8290cas
8		07:44	P174031	E1401177-008	E1401177-008			8290cas
9		08:32	P174032	E1401177-009	E1401177-009			8290cas
10		09:33	P174033	E1401177-010	E1401177-010		HRMS Check 09:28	8290cas
11		10:21	P174034	E1401177-011	E1401177-011			8290cas
12		11:09	P174035	EQ1400624-02	LCS			8290cas
13		11:57	P174036	CS3	72675		HRMS Check 12:53	8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			8290cas
26			---	---	---			8290cas
27			---	---	---			8290cas
28			---	---	---			8290cas
29			---	---	---			8290cas
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32	---	---	---	---	---	---	---	8290cas
33	---	---	---	---	---	---	---	8290cas
34	---	---	---	---	---	---	---	8290cas
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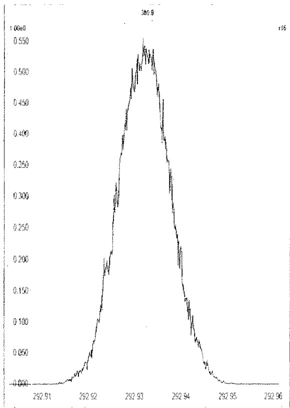
36	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	---

Reviewed By: gc 10/13/14

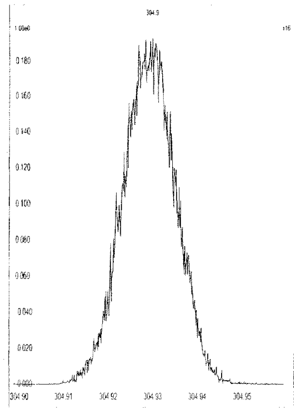
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:04:58 Central Daylight Time

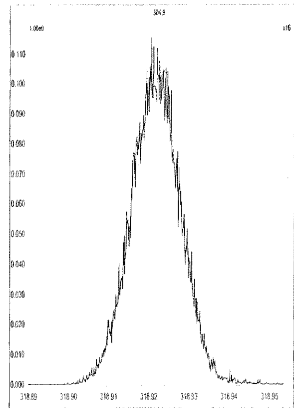
M 292.9824 R 11472



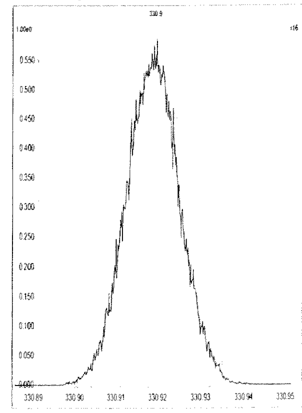
M 304.9824 R 11360



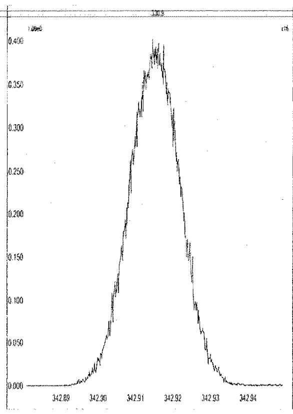
M 318.9792 R 11205



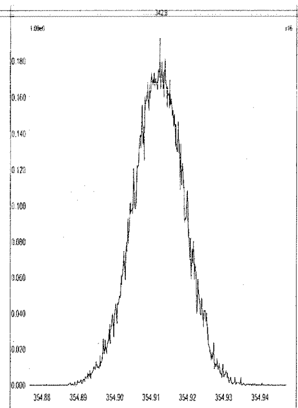
M 330.9792 R 10963



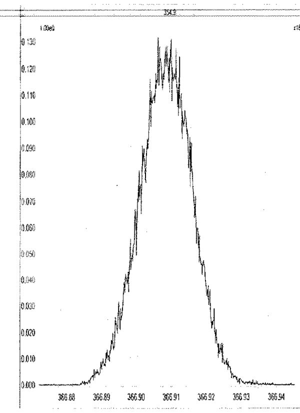
M 342.9792 R 10918



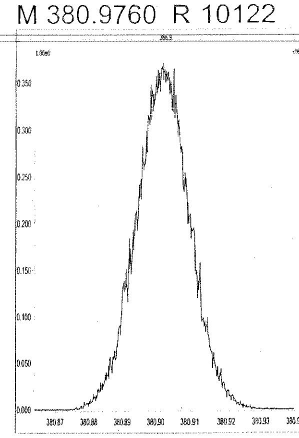
M 354.9792 R 10203



M 366.9792 R 10042



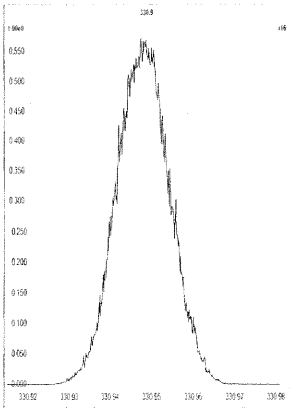
M 380.9760 R 10122



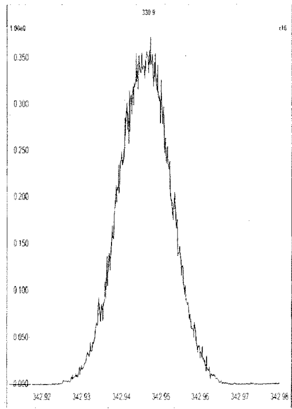
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:06:19 Central Daylight Time

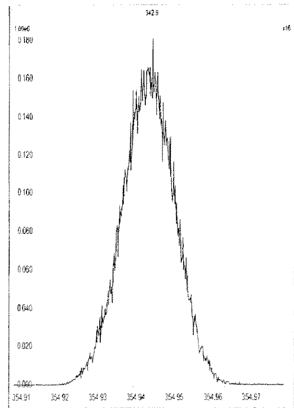
M 330.9792 R 11012



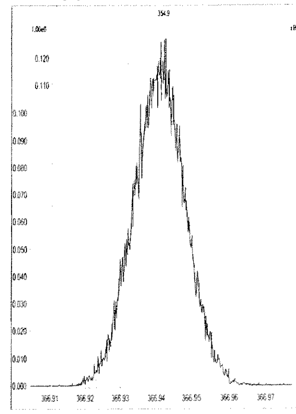
M 342.9792 R 10820



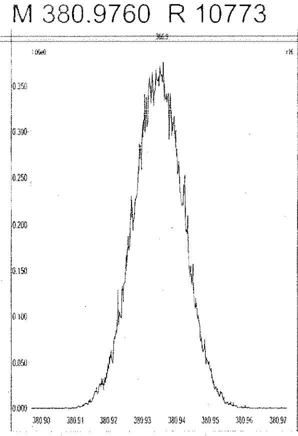
M 354.9792 R 11161



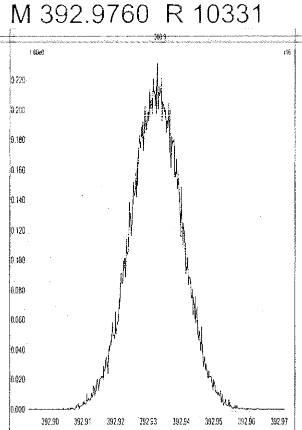
M 366.9792 R 10728



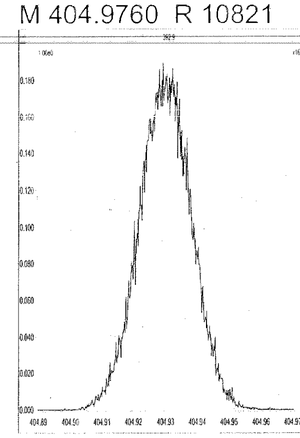
M 380.9760 R 10773



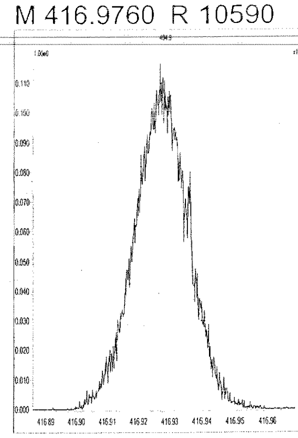
M 392.9760 R 10331



M 404.9760 R 10821



M 416.9760 R 10590

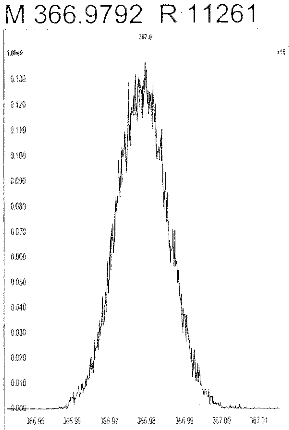


Experiment Calibration Report **MassLynx 4.1**

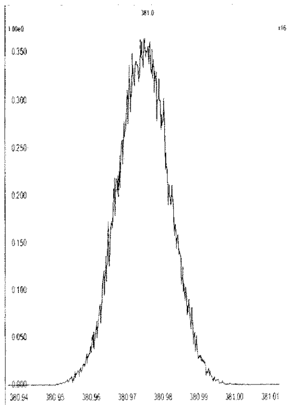
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:08:40 Central Daylight Time

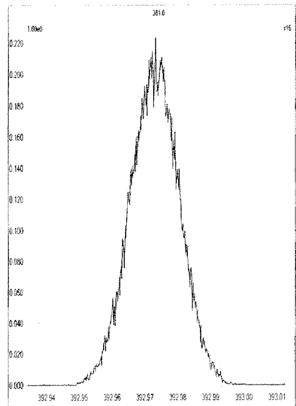
M 366.9792 R 11261



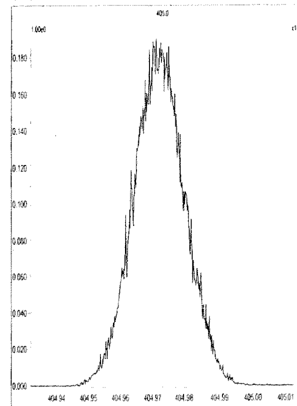
M 380.9760 R 11065



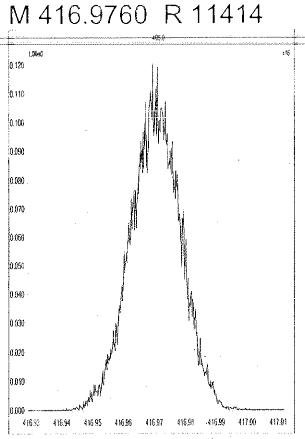
M 392.9760 R 10871



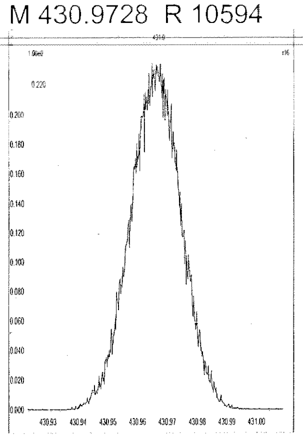
M 404.9760 R 11062



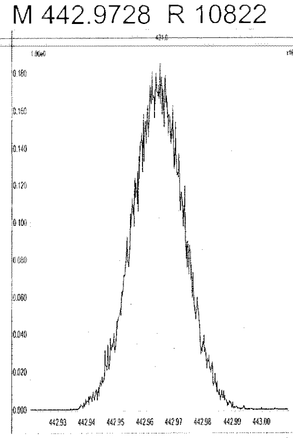
M 416.9760 R 11414



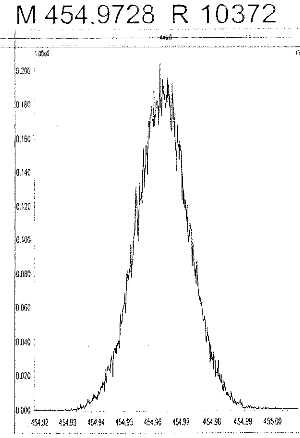
M 430.9728 R 10594



M 442.9728 R 10822



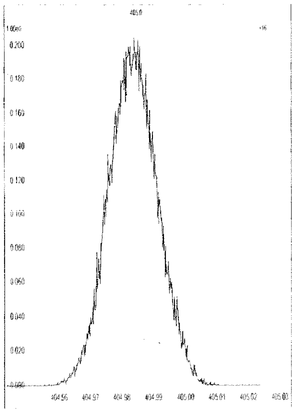
M 454.9728 R 10372



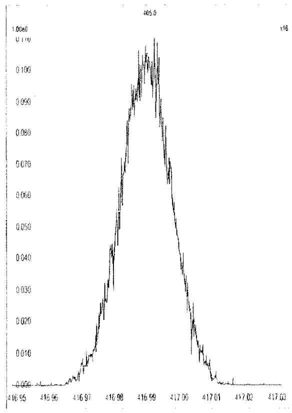
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, October 10, 2014 15:10:17 Central Daylight Time

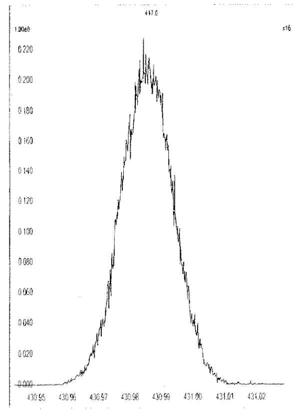
M 404.9760 R 11161



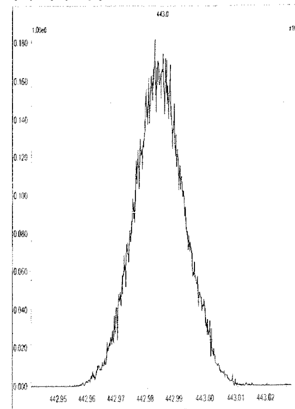
M 416.9760 R 10821



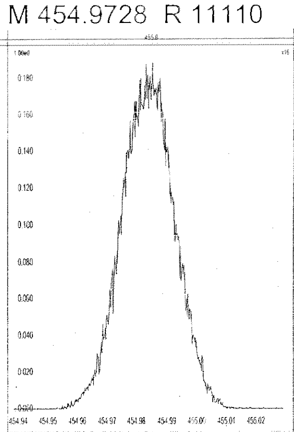
M 430.9728 R 11011



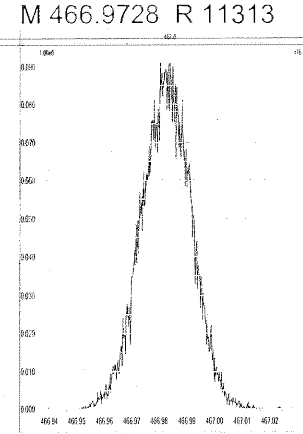
M 442.9728 R 10593



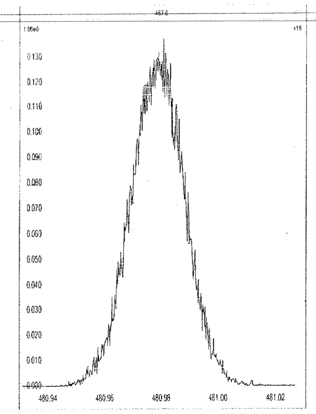
M 454.9728 R 11110



M 466.9728 R 11313



M 480.9696 R 10917



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Printed: Friday, October 10, 2014 15:11:06 Central Daylight Time

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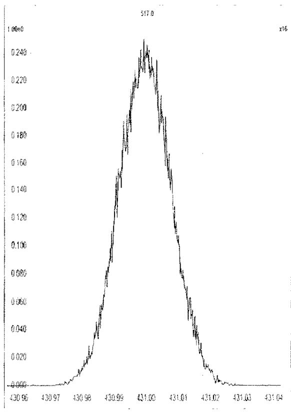

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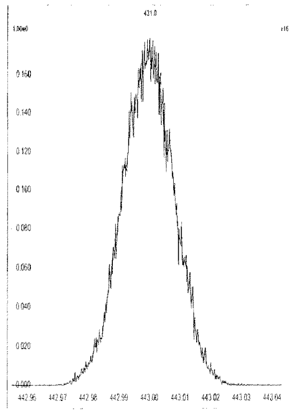

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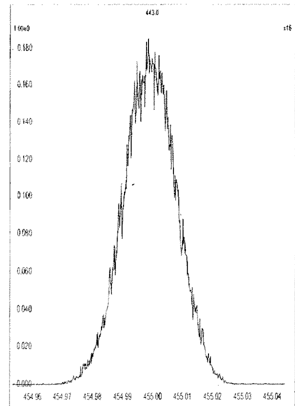

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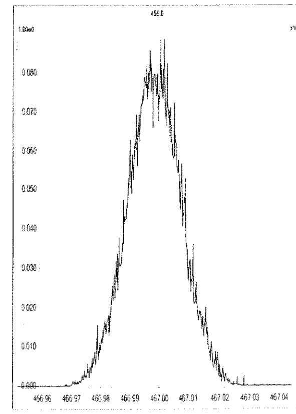

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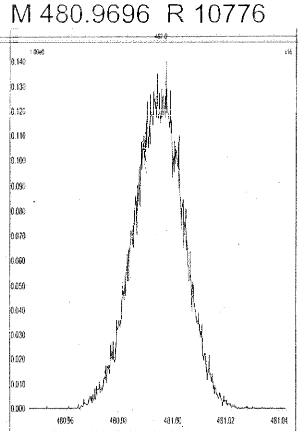

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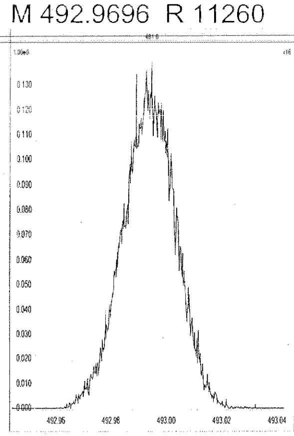

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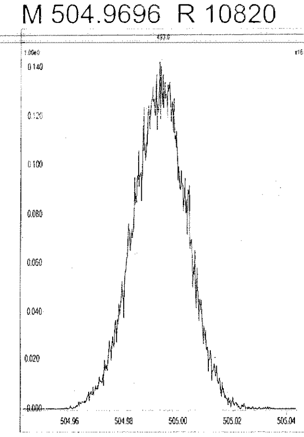

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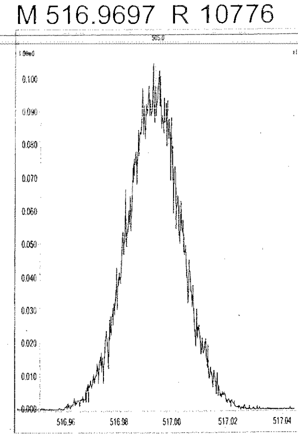

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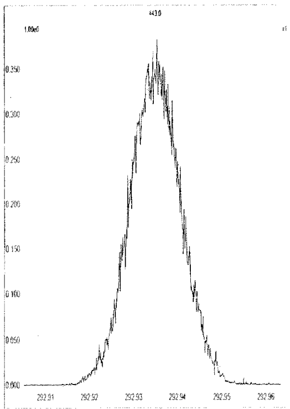

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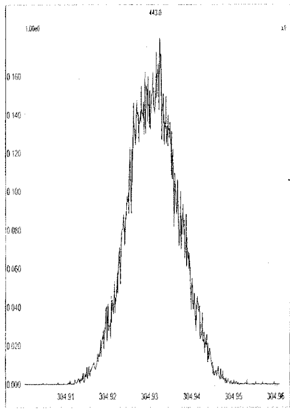

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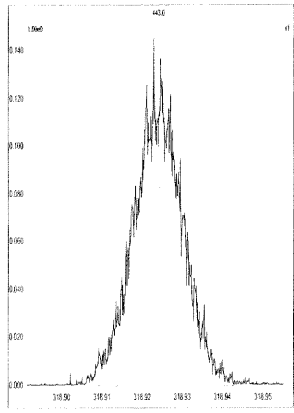

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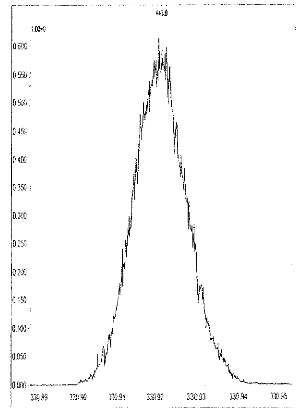

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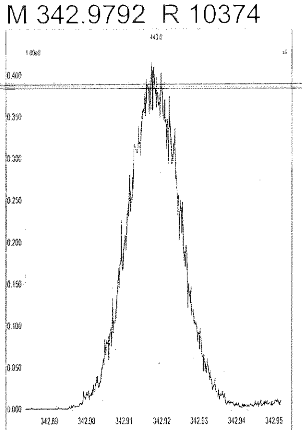

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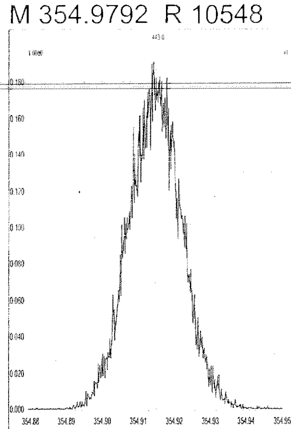

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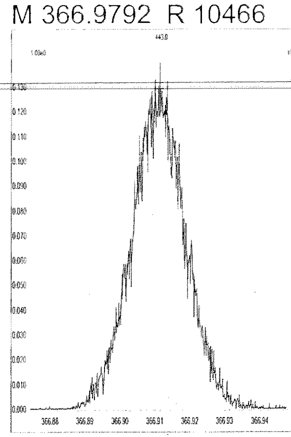

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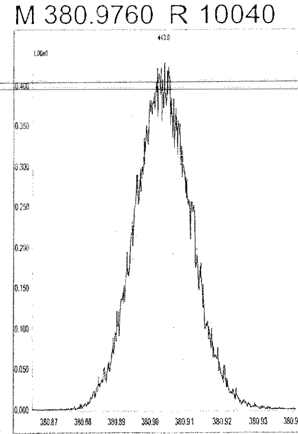

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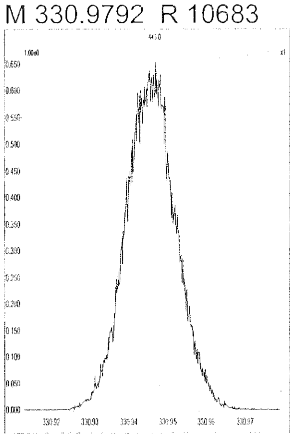

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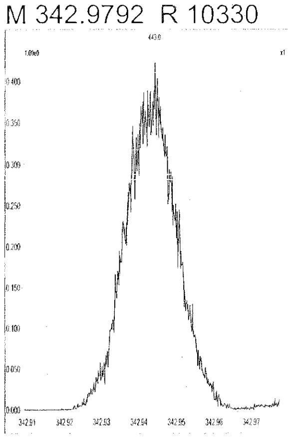

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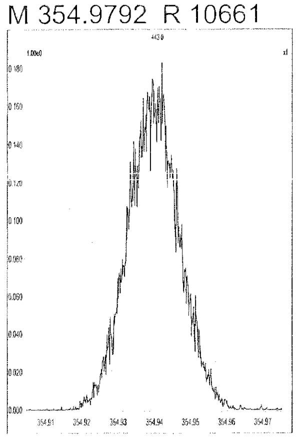

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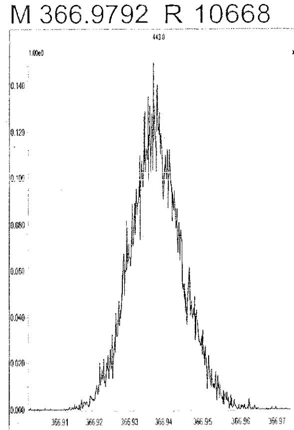

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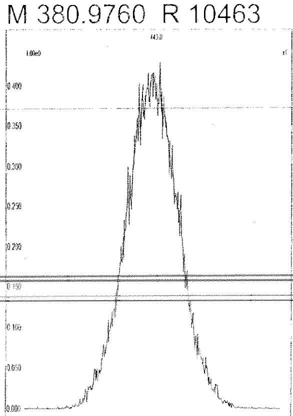

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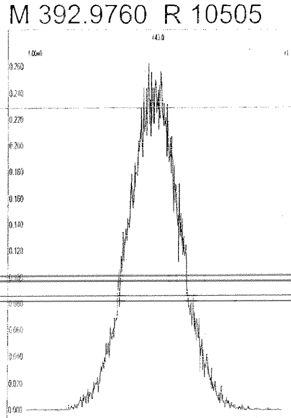

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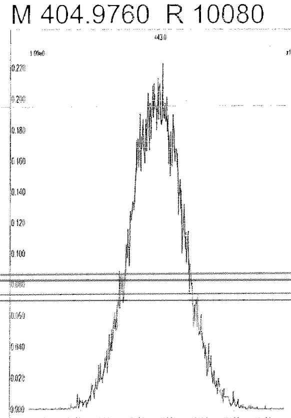

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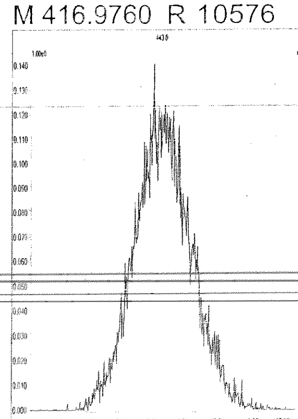

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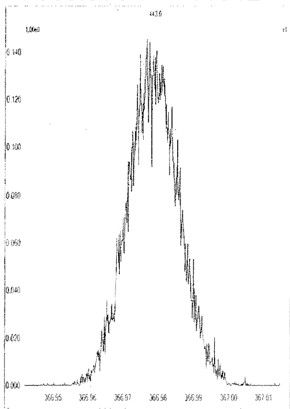

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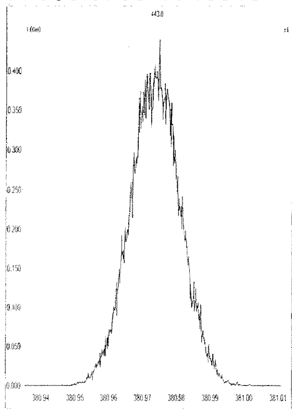

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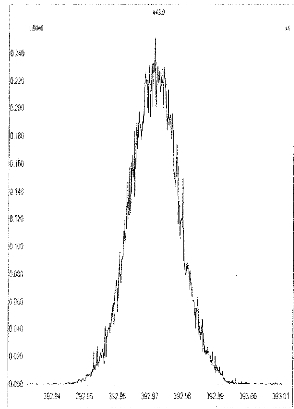

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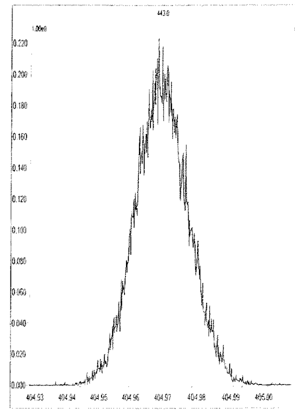

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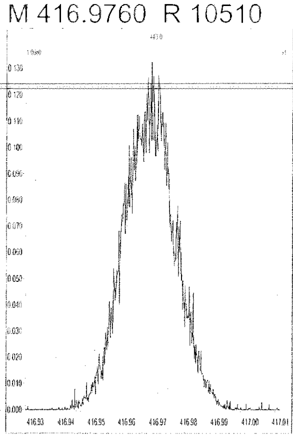

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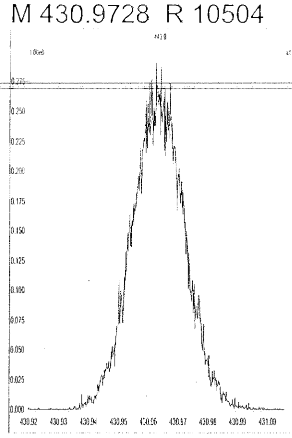

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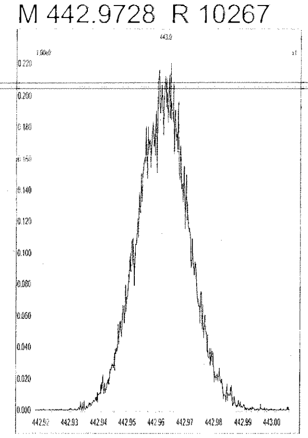

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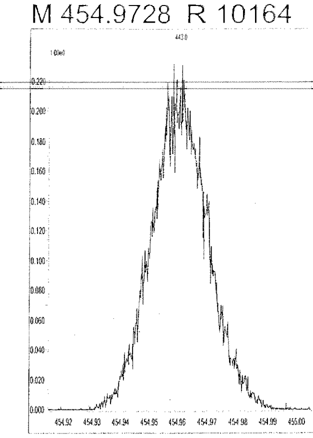

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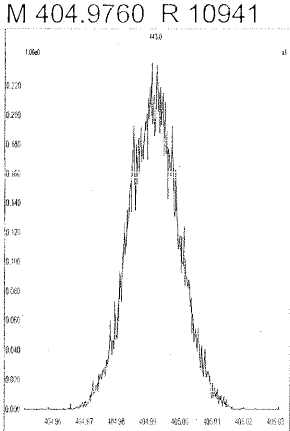

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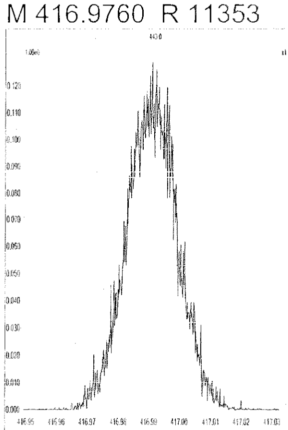

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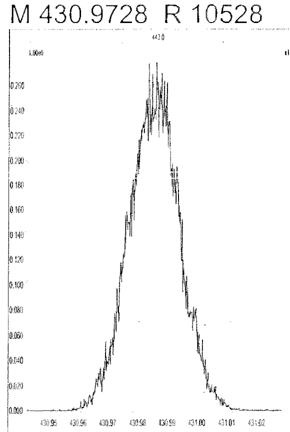

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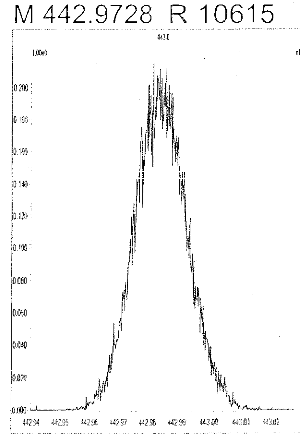

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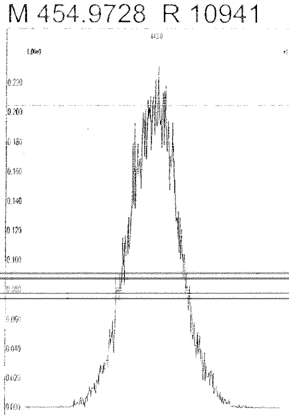

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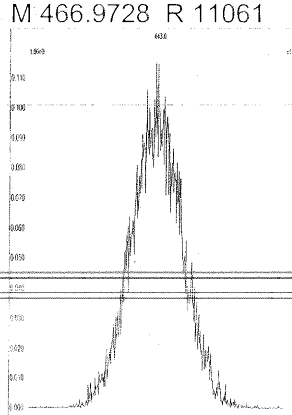

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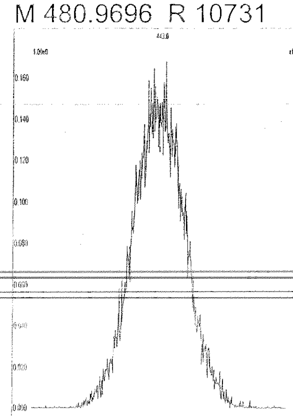

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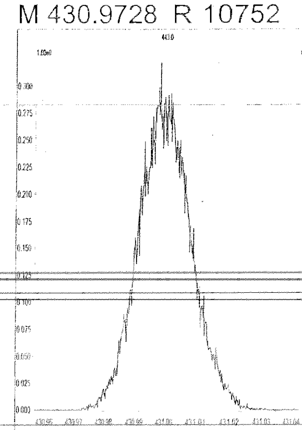

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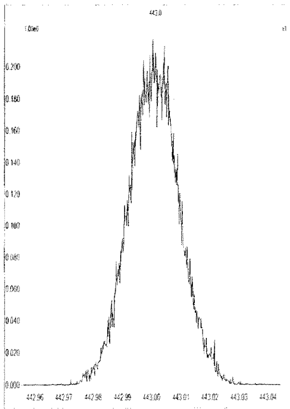

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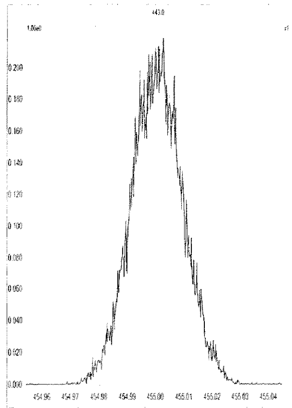

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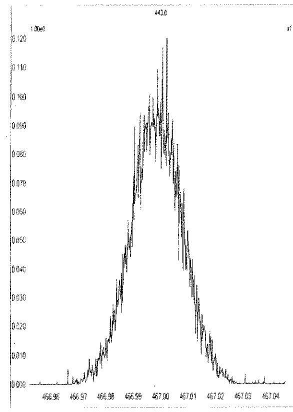

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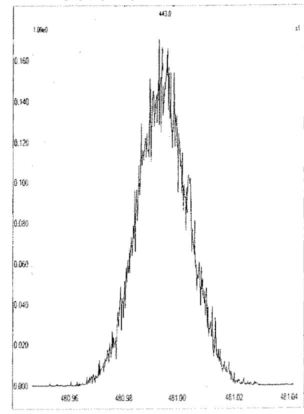

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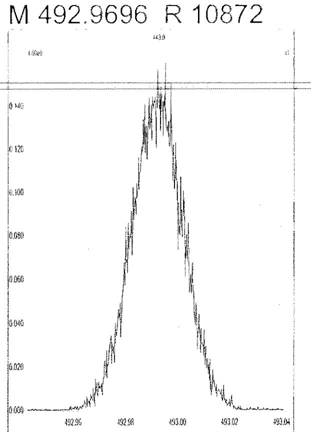

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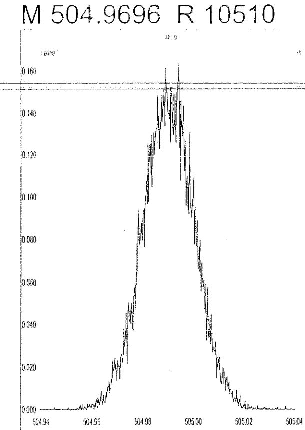

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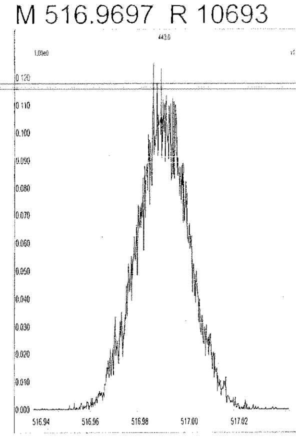

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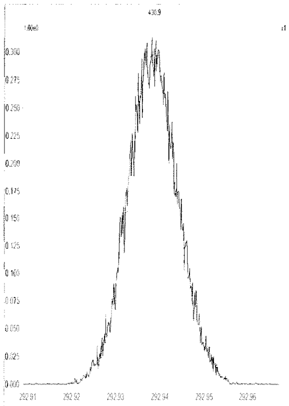

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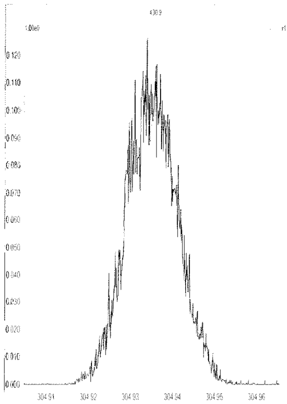

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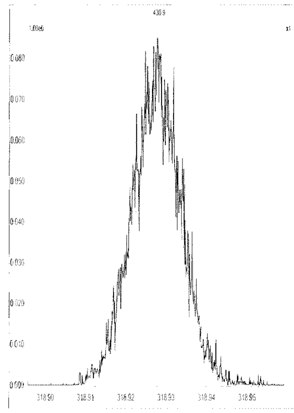

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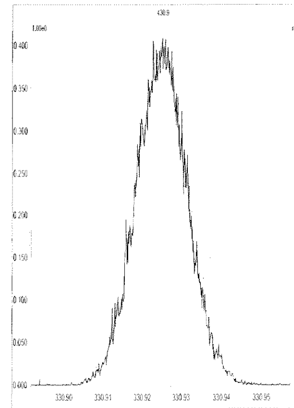

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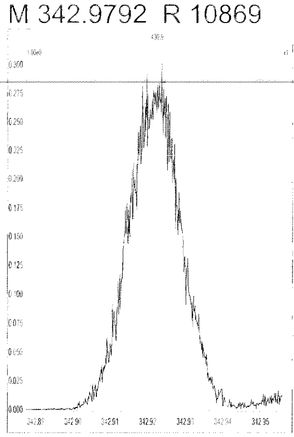

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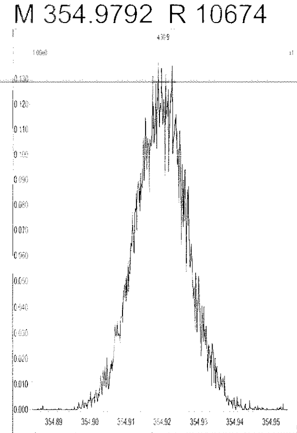

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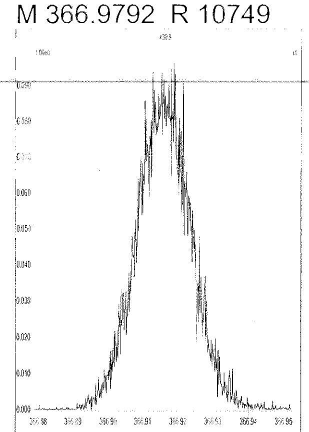

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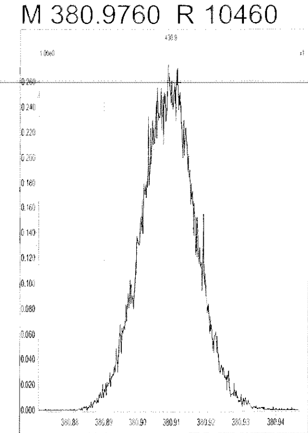

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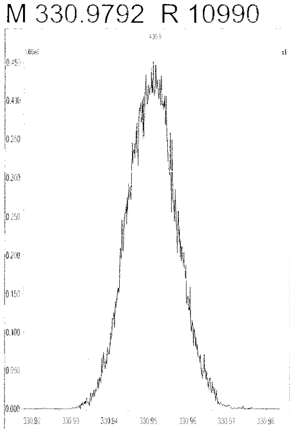

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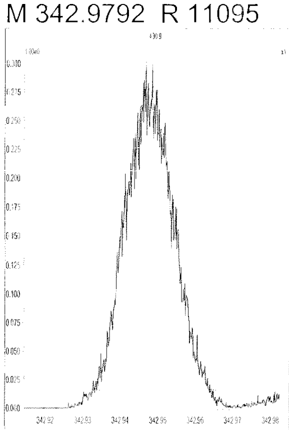

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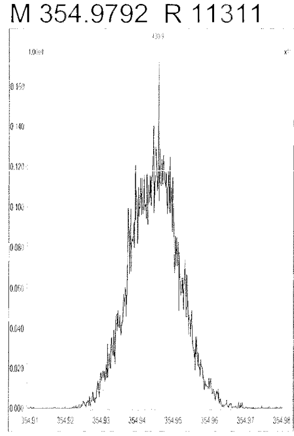

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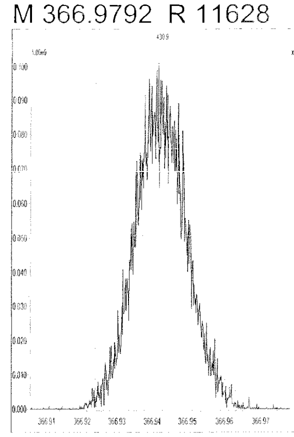

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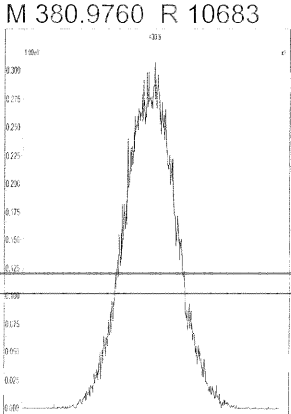

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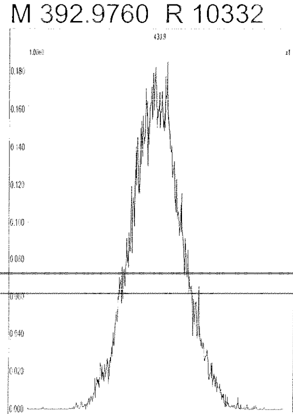

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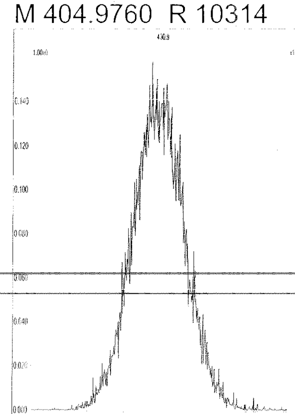

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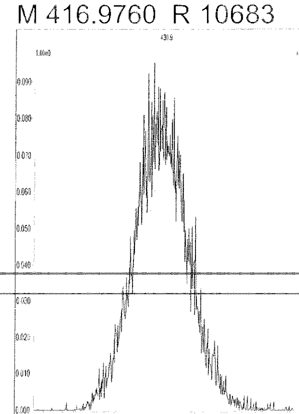

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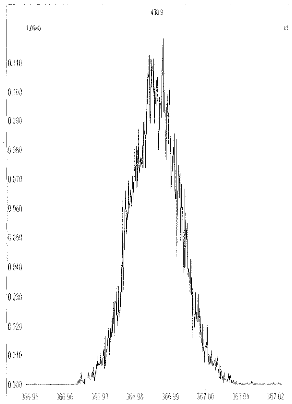

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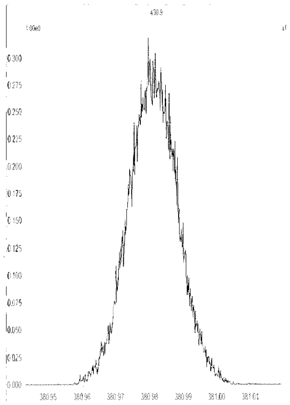

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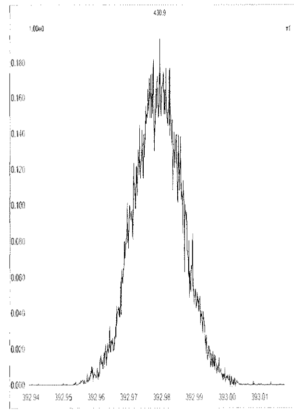

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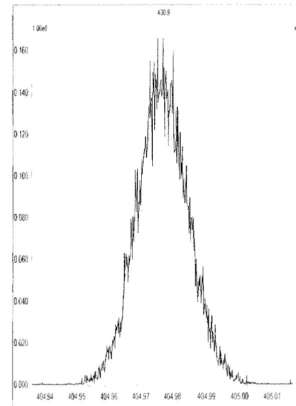

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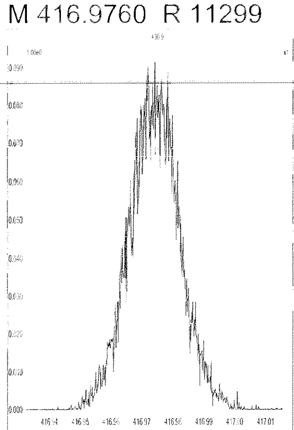

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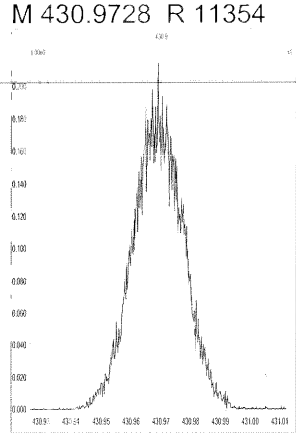

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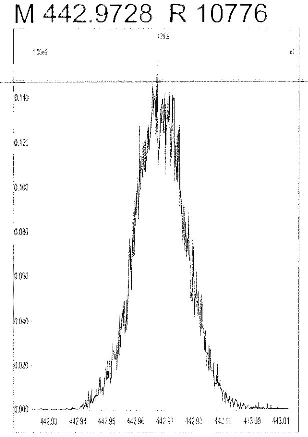

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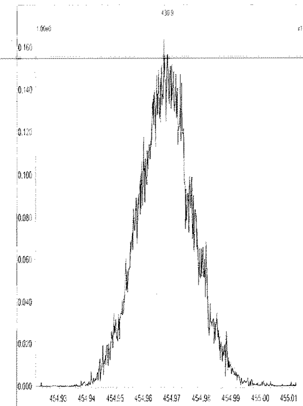
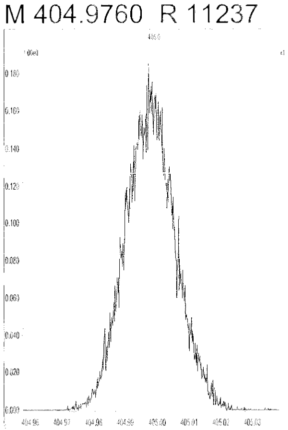
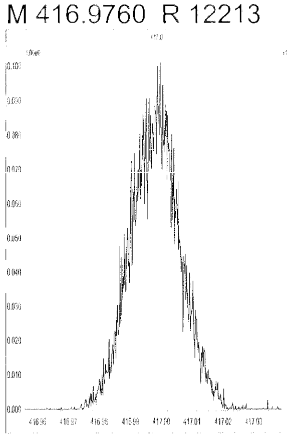


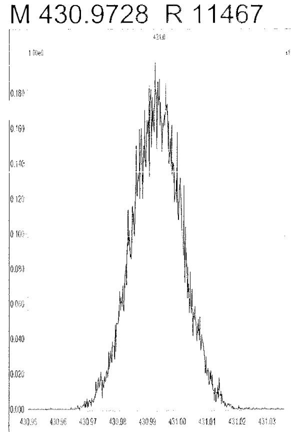
M 404.9760 R 11237



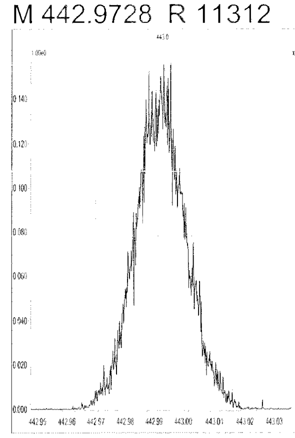
M 416.9760 R 12213



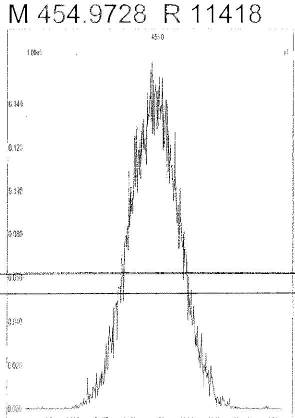
M 430.9728 R 11467



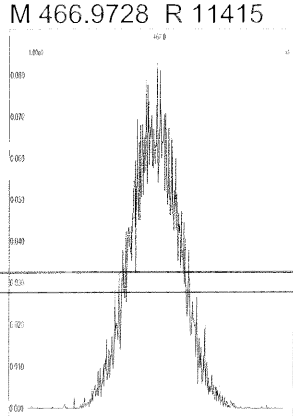
M 442.9728 R 11312



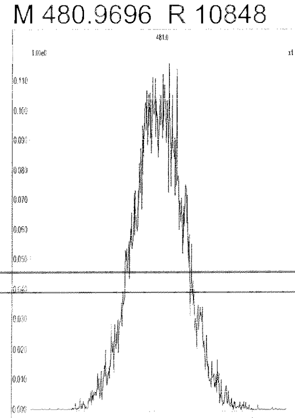
M 454.9728 R 11418



M 466.9728 R 11415



M 480.9696 R 10848



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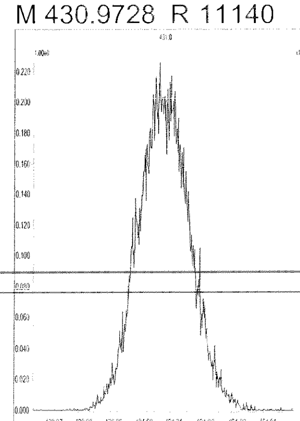
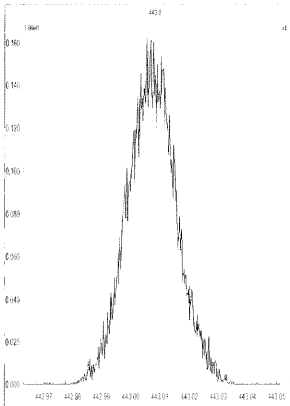
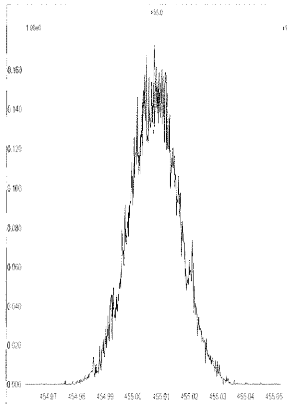


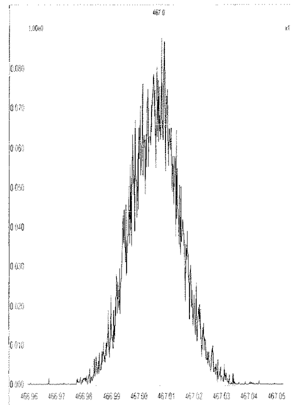
M 442.9728 R 11392



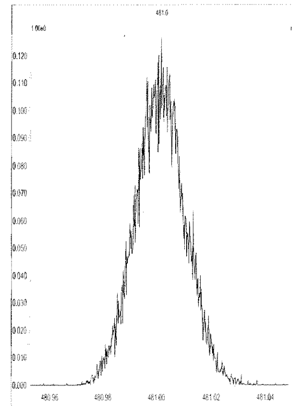
M 454.9728 R 11049



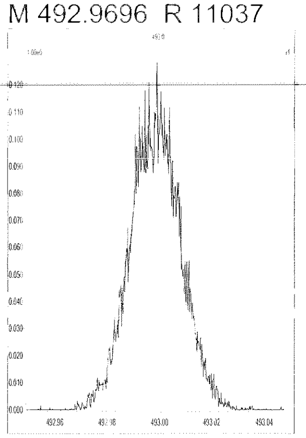
M 466.9728 R 11396



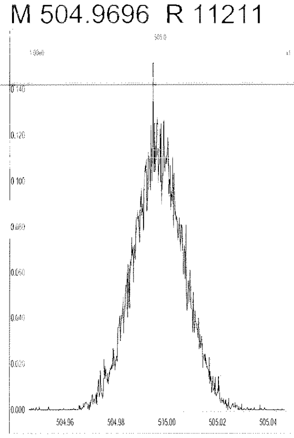
M 480.9696 R 11443



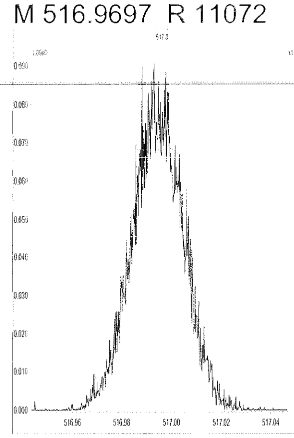
M 492.9696 R 11037



M 504.9696 R 11211



M 516.9697 R 11072



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

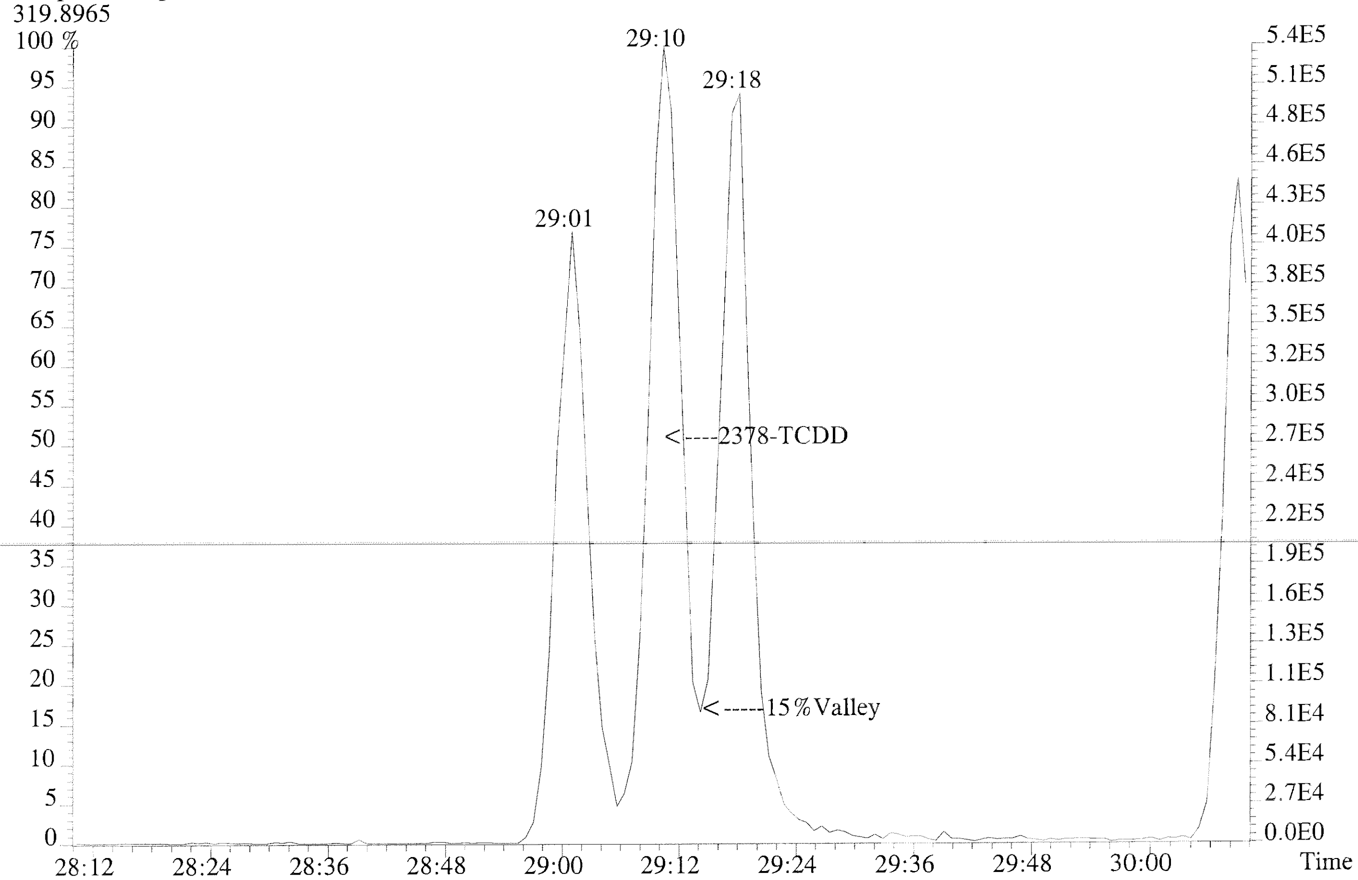
WDM

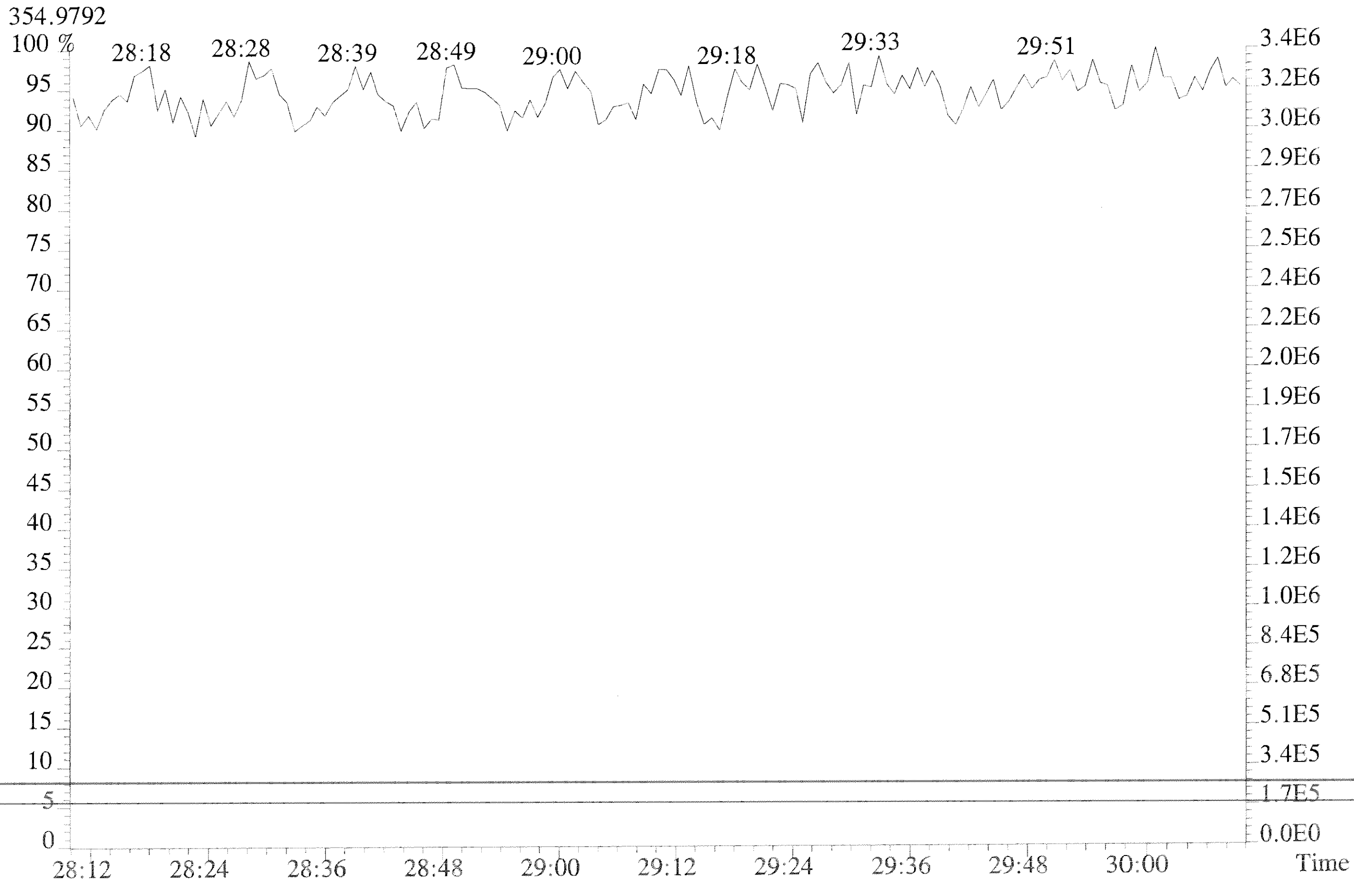
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______________ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P174025
Date Analyzed: 11-OCT-2014
Time Analyzed: 02:55:25

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:06	30:19
TCDD	25:59	30:09
PeCDF	30:15	34:25
PeCDD	31:45	34:09
HxCDF	35:03	37:31
HxCDD	35:33	37:06
HpCDF	38:43	40:07
HpCDD	38:57	39:38

% Valley 2378-TCDD: 15 %

File:P174025 #1-788 Acq:11-OCT-2014 02:55:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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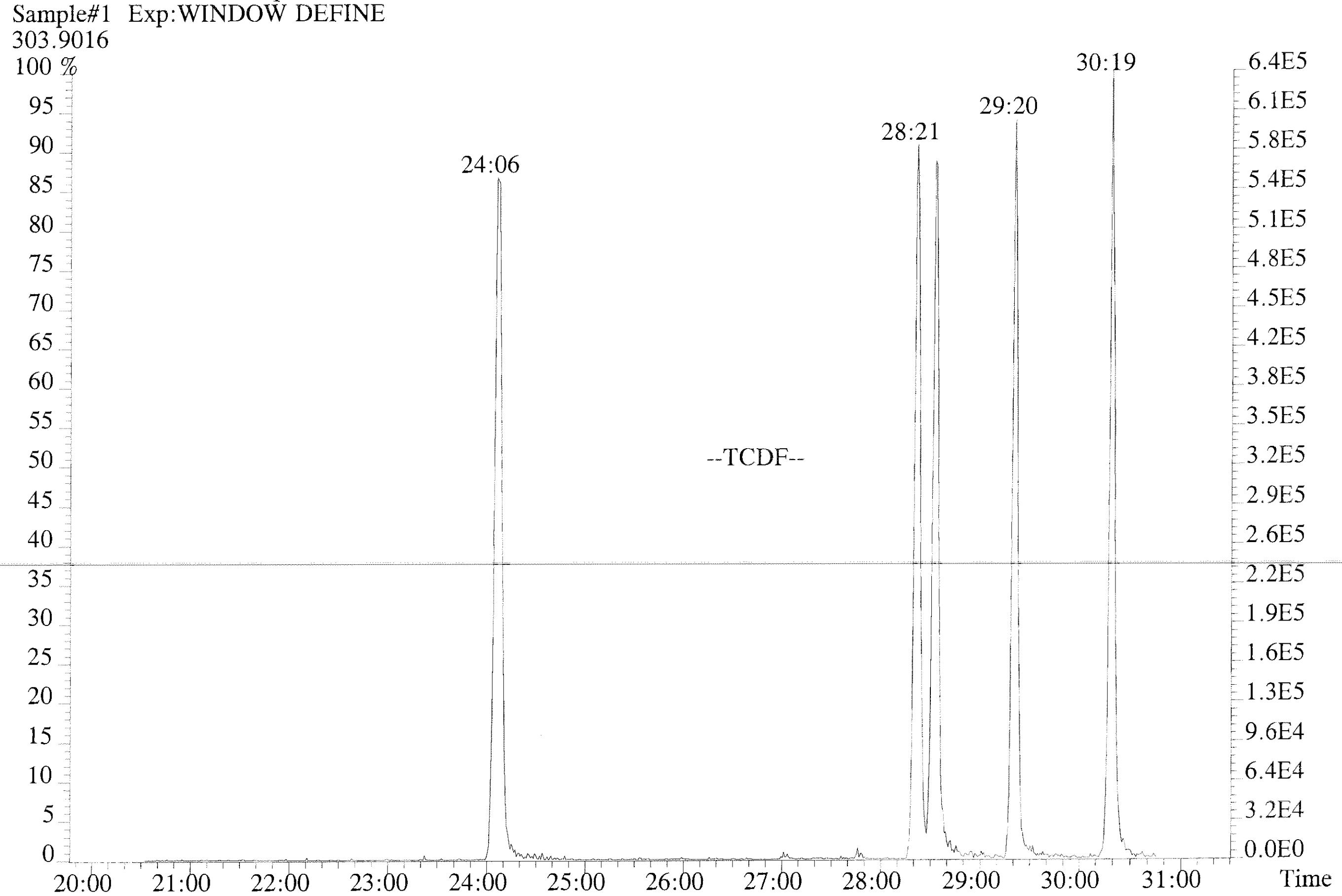
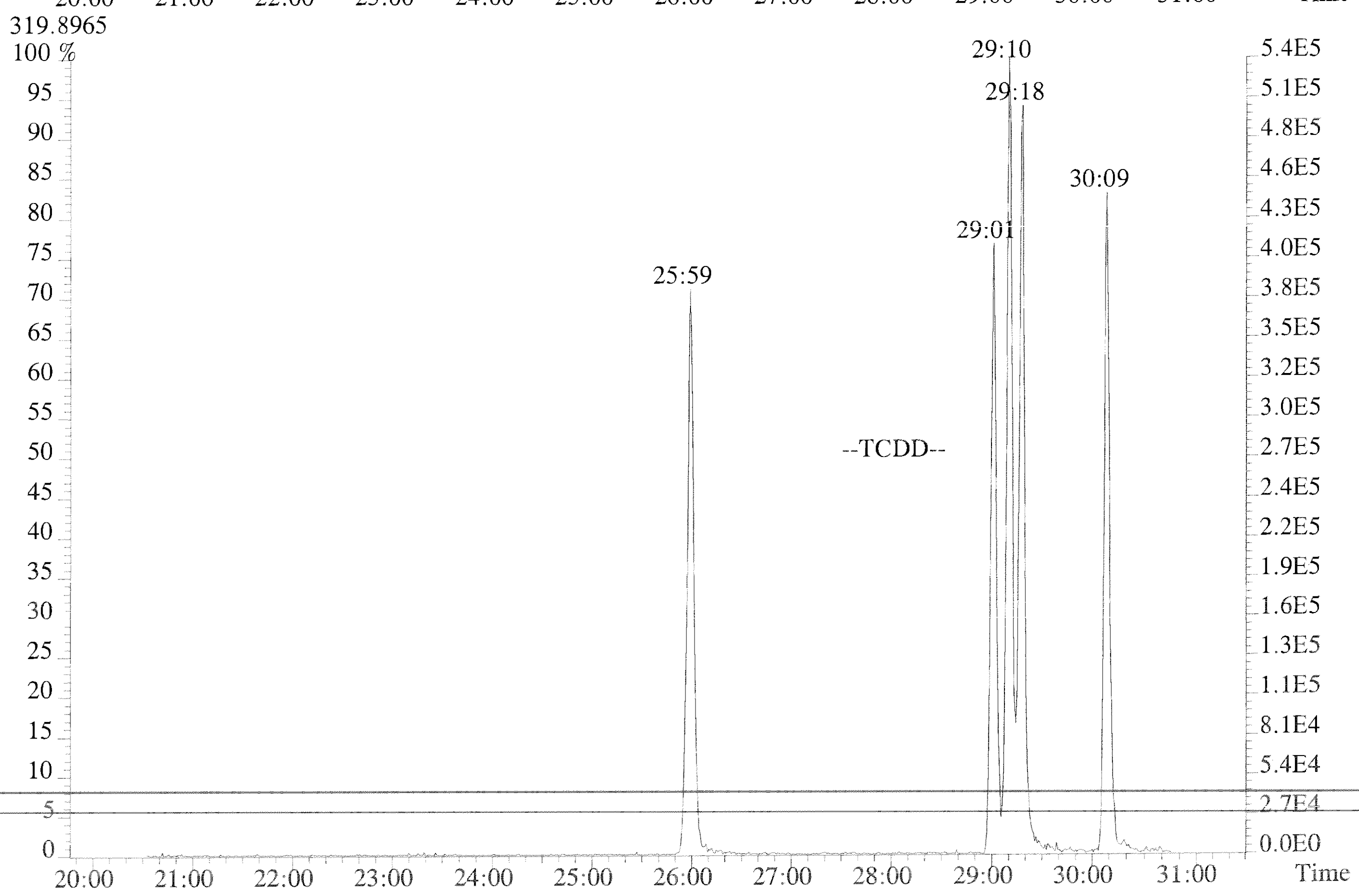
Sample#1 Exp:WINDOW DEFINE





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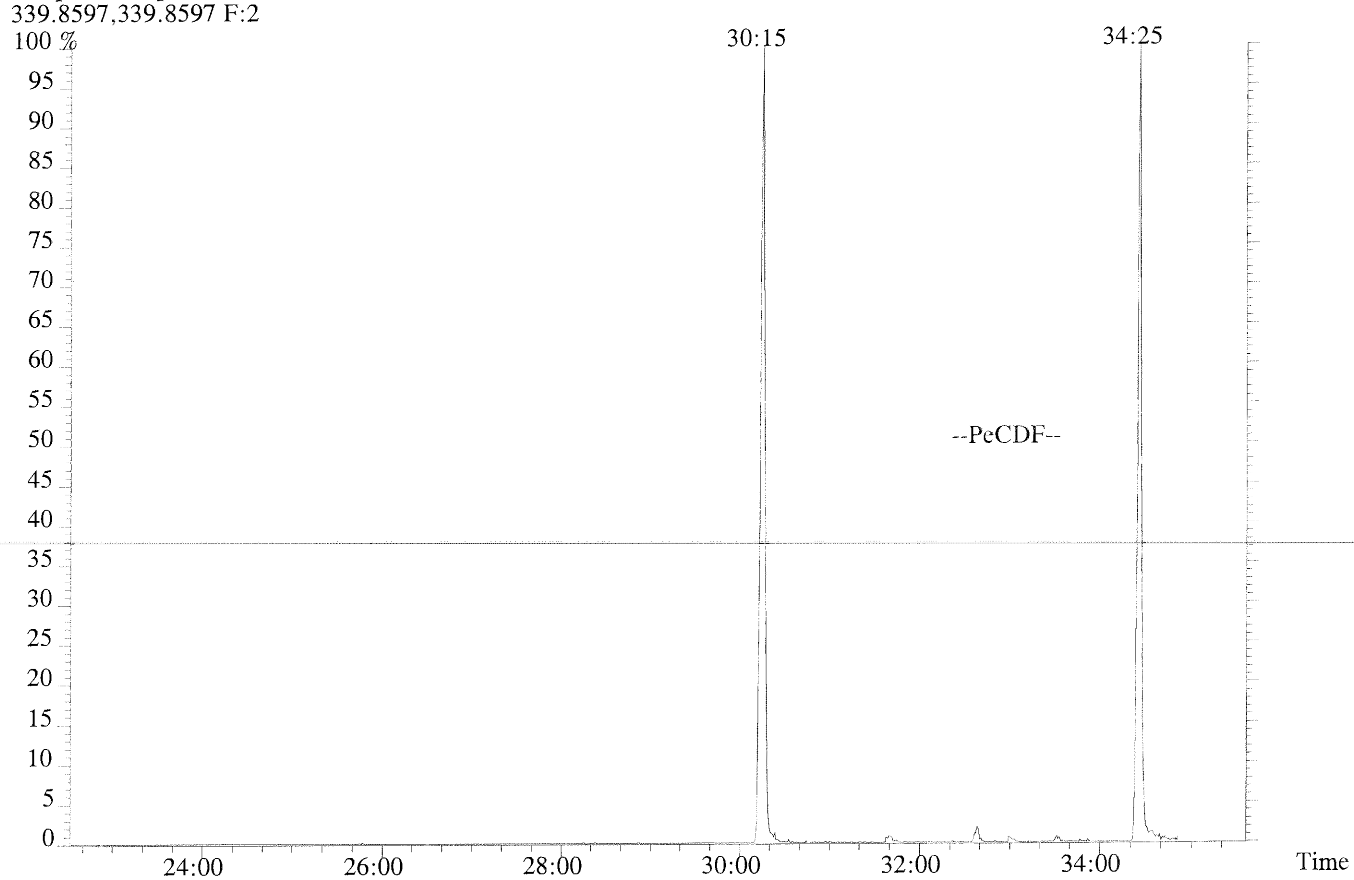
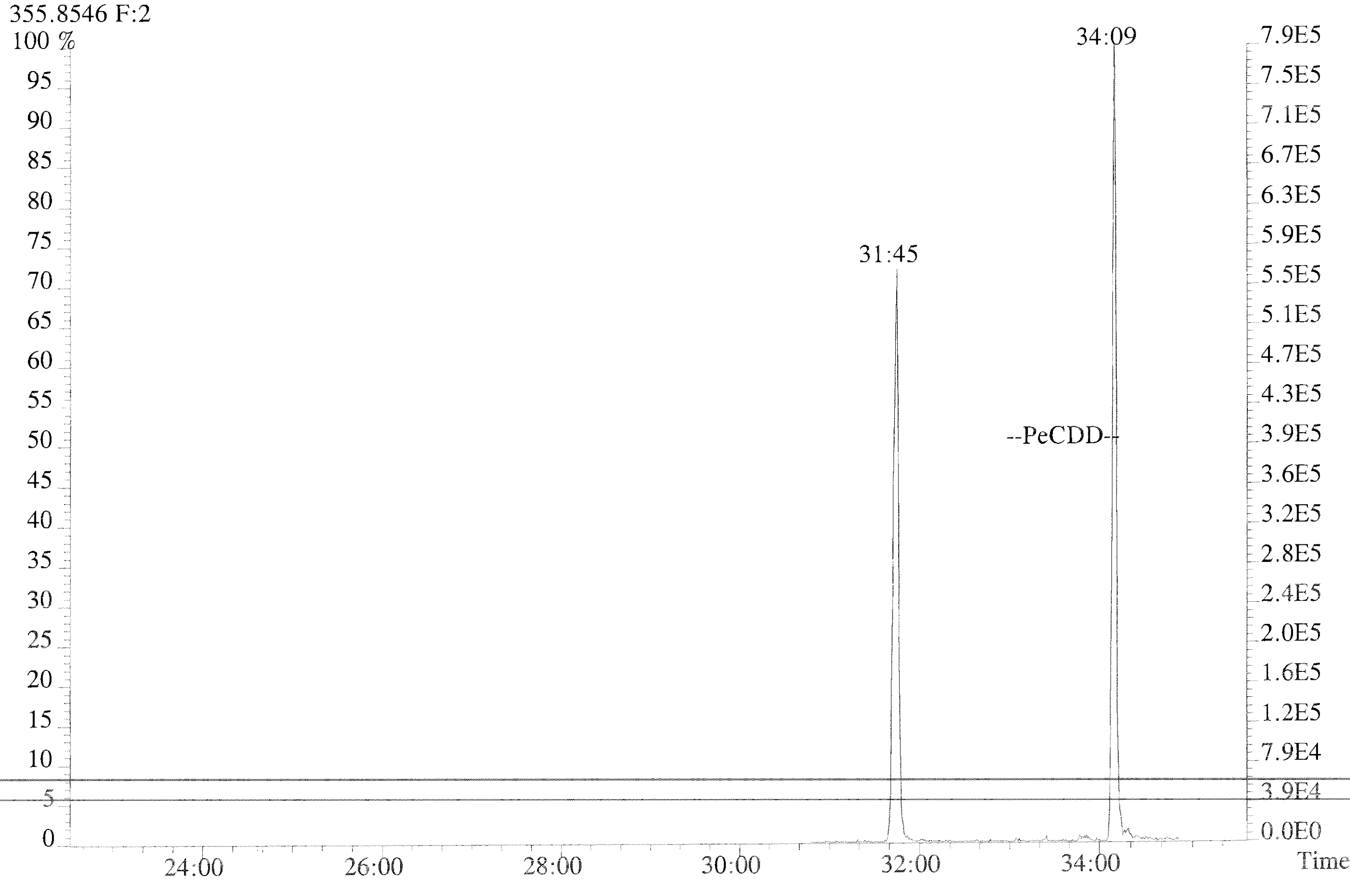
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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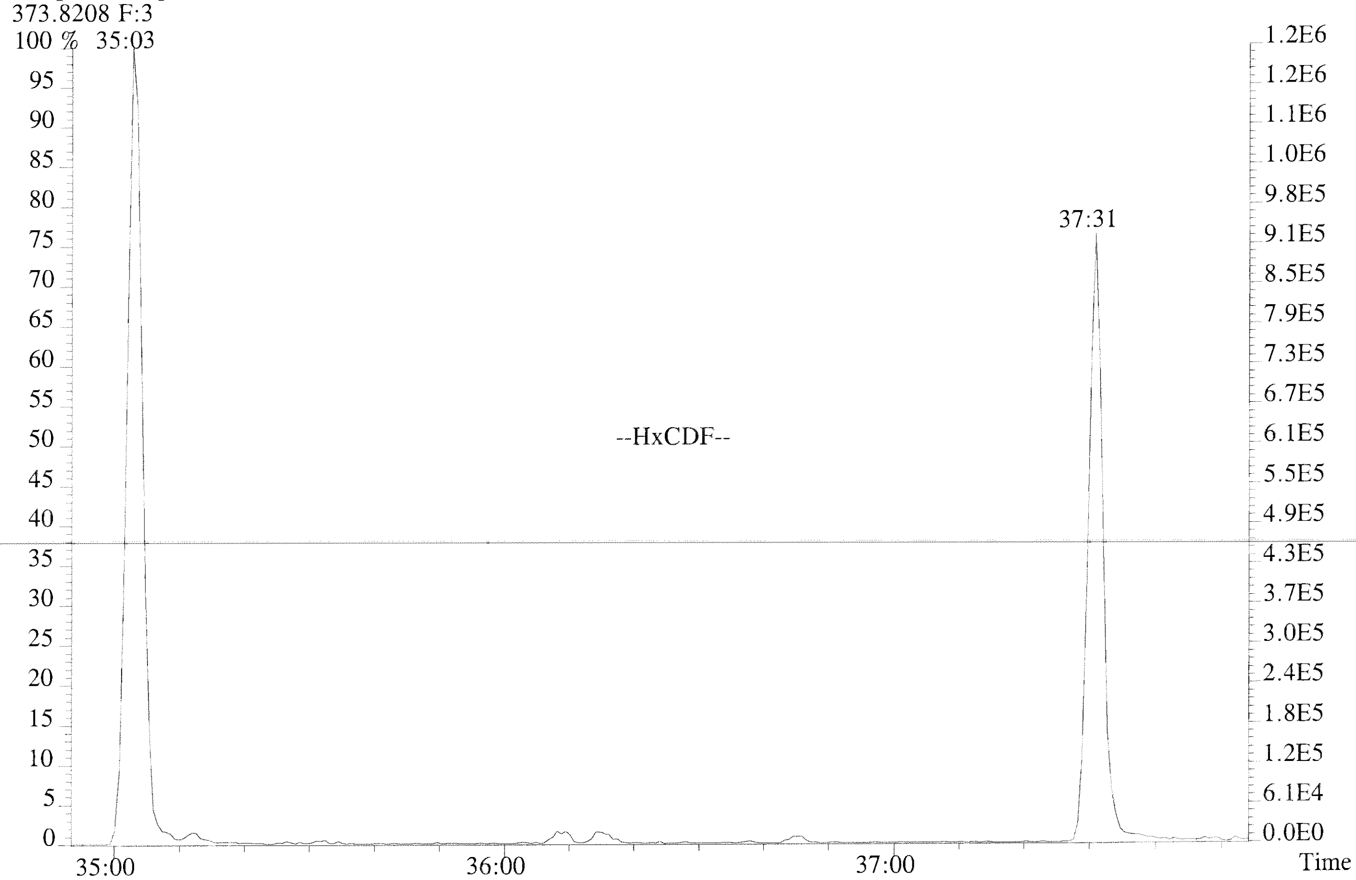
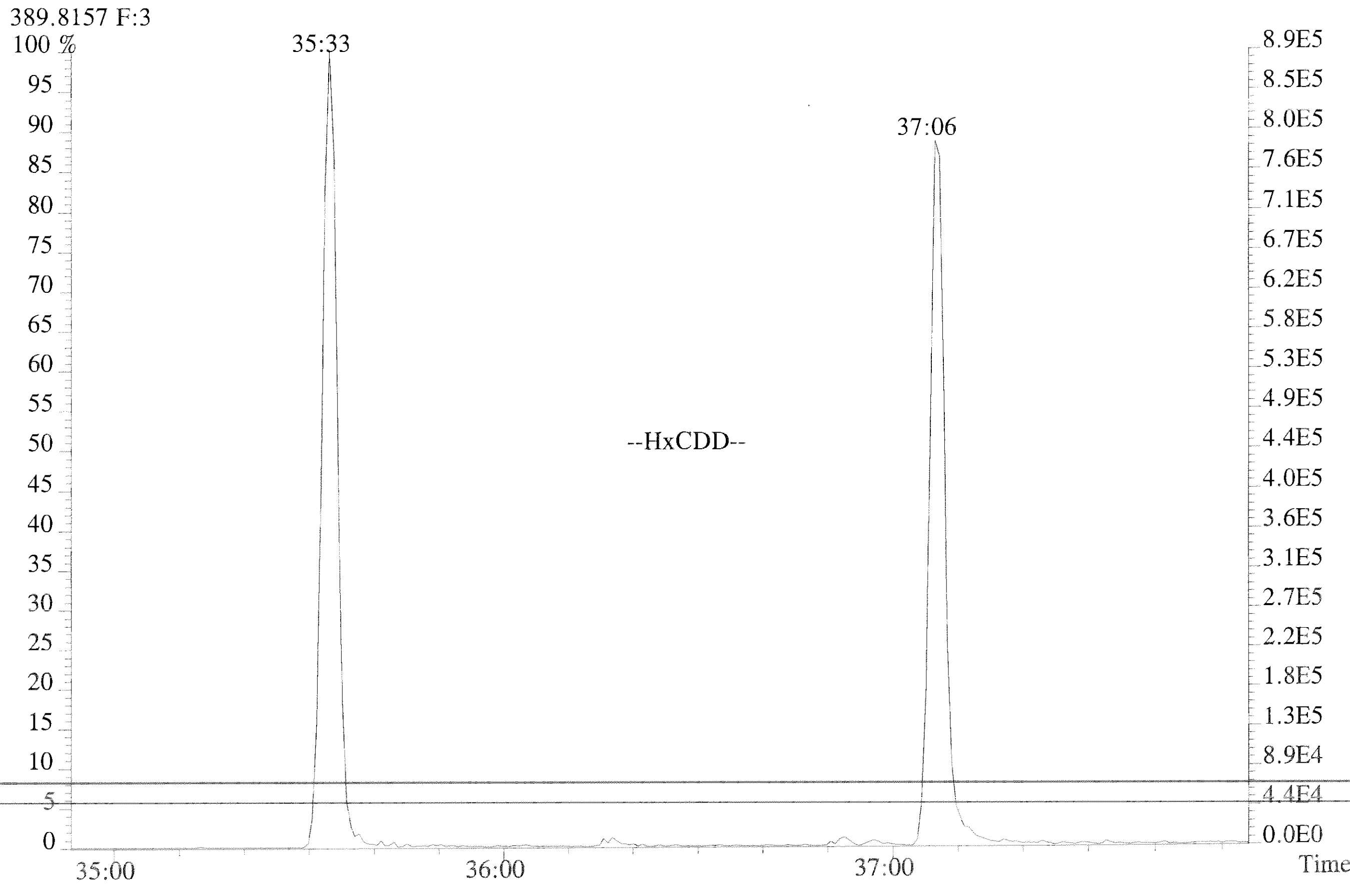
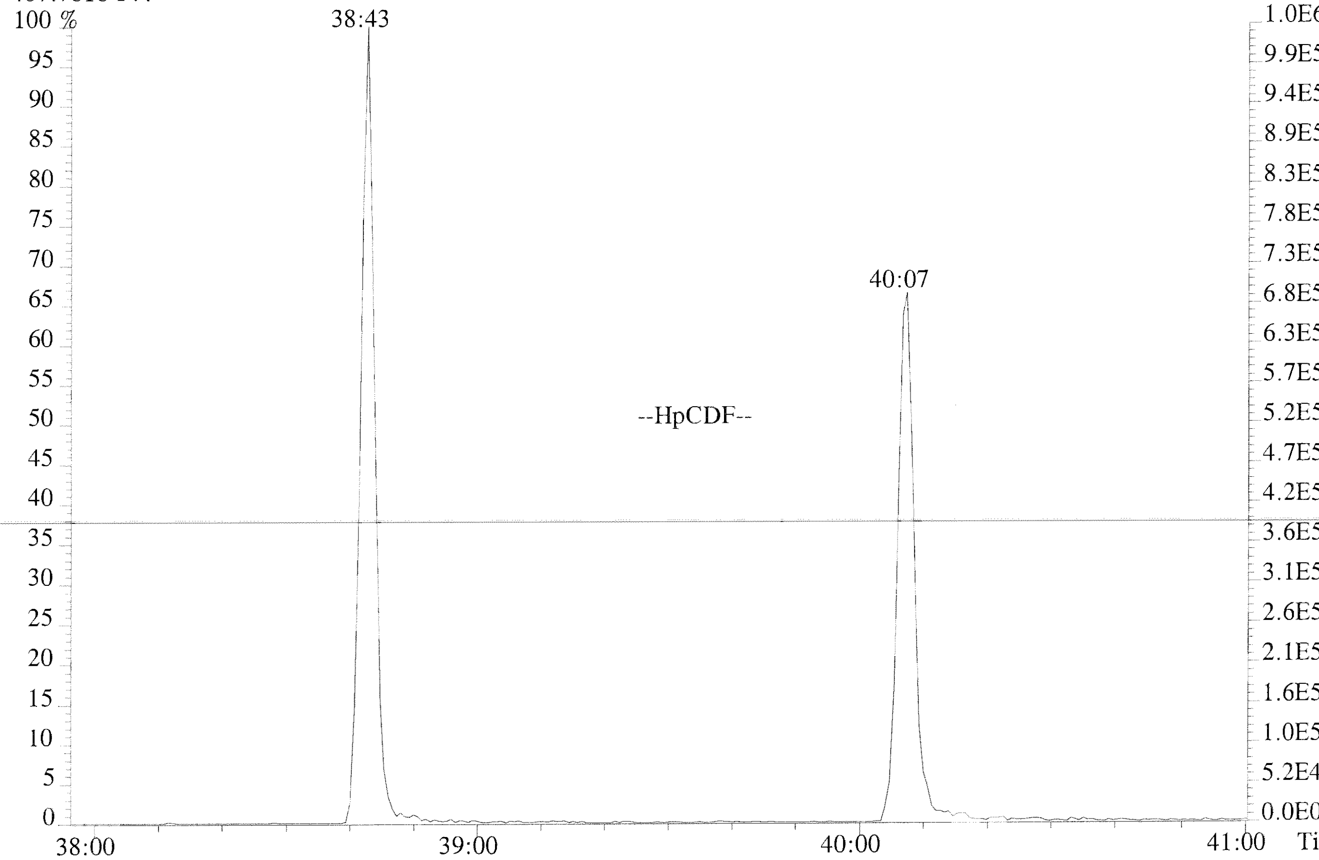
Sample#1 Exp:WINDOW DEFINE



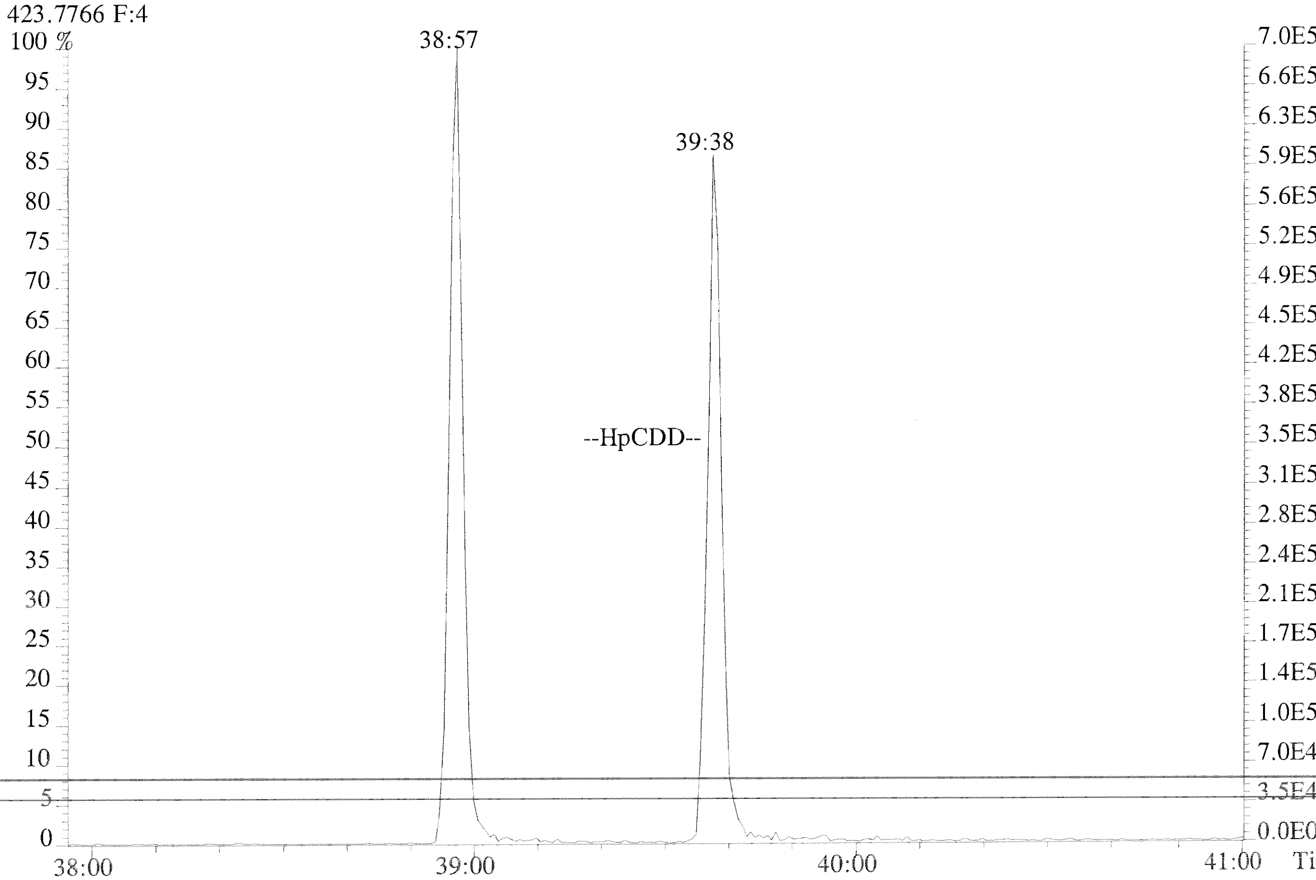


File:P174025 #1-279 Acq:11-OCT-2014 02:55:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 6A
PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: ALS ENVIRONMENTAL, HOUSTON Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

Begin CCAL Filename: P174024

End CCAL Filename: P174036

	RELATIVE RESPONSE (RR)		MEAN RR(1)	Cv (RSD)
	Begin CCAL	End CCAL		
NATIVE ANALYTES				
2,3,7,8-TCDD	0.96	0.98	0.97	1.05
1,2,3,7,8-PeCDD	0.93	0.93	0.93	0.38
1,2,3,4,7,8-HxCDD	1.01	1.04	1.02	1.84
1,2,3,6,7,8-HxCDD	1.00	1.02	1.01	0.85
1,2,3,7,8,9-HxCDD	1.07	1.07	1.07	0.10
1,2,3,4,6,7,8-HpCDD	1.03	1.03	1.03	0.24
OCDD	1.09	1.10	1.10	0.52
2,3,7,8-TCDF	0.90	0.91	0.90	1.30
1,2,3,7,8-PeCDF	1.09	1.09	1.09	0.24
2,3,4,7,8-PeCDF	1.03	1.03	1.03	0.13
1,2,3,4,7,8-HxCDF	1.36	1.34	1.35	1.17
1,2,3,6,7,8-HxCDF	1.25	1.26	1.26	0.71
1,2,3,7,8,9-HxCDF	1.27	1.27	1.27	0.18
2,3,4,6,7,8-HxCDF	1.24	1.26	1.25	0.93
1,2,3,4,6,7,8-HpCDF	1.56	1.54	1.55	0.97
1,2,3,4,7,8,9-HpCDF	1.45	1.43	1.44	0.62
OCDF	1.36	1.39	1.38	1.48

(1) Two daily mean RF values are used to compute the analyte and and labeled compounds, see Section 8.3.2.4, Method 8290.

8290F6A

USEPA - ITD

FORM 6B

PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: ALS ENVIRONMENTAL, HOUSTON Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

Begin CCAL Filename: P174024
End CCAL Filename: P174036

LABELED COMPOUNDS	RELATIVE RESPONSE (RR) Begin CCAL	End CCAL	MEAN RR(1)	Cv (RSD)
13C-2,3,7,8-TCDF	1.35	1.34	1.35	0.48
13C-1,2,3,7,8-PeCDF	1.41	1.36	1.38	2.17
13C-2,3,4,7,8-PeCDF	1.40	1.34	1.37	3.33
13C-1,2,3,4,7,8-HxCDF	1.14	1.16	1.15	1.46
13C-1,2,3,6,7,8-HxCDF	1.27	1.27	1.27	0.38
13C-2,3,4,6,7,8-HxCDF	1.20	1.19	1.20	0.75
13C-1,2,3,7,8,9-HxCDF	1.04	0.95	0.99	6.44
13C-1,2,3,4,6,7,8-HpCDF	0.97	0.78	0.87	15.64
13C-1,2,3,4,7,8,9-HpCDF	0.81	0.68	0.75	11.87
13C-2,3,7,8-TCDD	0.98	0.98	0.98	0.14
13C-1,2,3,7,8-PeCDD	1.02	0.98	1.00	2.88
13C-1,2,3,4,7,8-HxCDD	0.93	0.95	0.94	1.61
13C-1,2,3,6,7,8-HxCDD	0.95	0.91	0.93	3.46
13C-1,2,3,4,6,7,8-HpCDD	0.88	0.74	0.81	12.23
13C-OCDD	0.66	0.53	0.59	15.80
CLEANUP STANDARD				
37Cl-2,3,7,8-TCDD	1.00	1.01	1.01	0.75

(1) Two daily mean RF values are used to compute the analyte and labeled compounds, see Section 8.3.2.4, Method 8290.

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P174024 Analysis Date: 11-OCT-14 Time: 02:07:17

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.3	7.8 - 12.9	-7.2
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-1.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-2.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.5	8.4 - 12.0	-5.1
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	54	41 - 60	7.5
2,3,4,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	53	41 - 61	5.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.29	1.05-1.43	55	45 - 56	9.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	53	44 - 57	6.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	55	45 - 56	10.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	54	44 - 57	8.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	56	45 - 55	11.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	55	43 - 58	9.3
OCDF	M+2/M+4	0.92	0.76-1.02	104	63 - 159	4.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P174024   Analysis Date: 11-OCT-14   Time: 02:07:17

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	93	82 - 121	-6.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	78	62 - 160	-22.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	108	85 - 117	7.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	101	85 - 118	0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	102	72 - 138	2.1
13C-OCDD	M+2/M+4	0.90	0.76-1.02	174	96 - 415	-13.0
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	93	71 - 140	-6.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	76	76 - 130	-24.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	78	77 - 130	-22.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	109	76 - 131	8.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	106	70 - 143	5.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	101	74 - 135	1.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	107	73 - 137	7.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	107	78 - 129	6.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	99	77 - 129	-0.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.9	7.8 - 12.7	-11.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #7 Filename P174024 Samp: 1 Inj: 1 Acquired: 11-OCT-14 02:07:17
Processed: 13-OCT-14 08:06:41 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:32	2.930e+03	3.773e+03	0.78	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:37	2.602e+04	1.644e+04	1.58	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:31	2.464e+04	1.524e+04	1.62	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:08	2.395e+04	1.863e+04	1.29	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:15	2.450e+04	1.940e+04	1.26	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:44	2.295e+04	1.834e+04	1.25	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:29	2.042e+04	1.597e+04	1.28	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	2.156e+04	2.024e+04	1.06	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	1.651e+04	1.578e+04	1.05	yes	no	1.324
10	Unk	OCDF	42:37	2.371e+04	2.576e+04	0.92	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:17	2.302e+03	2.905e+03	0.79	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	33:47	1.600e+04	1.023e+04	1.56	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	36:52	1.423e+04	1.159e+04	1.23	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	36:56	1.464e+04	1.174e+04	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:11	1.552e+04	1.227e+04	1.26	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.292e+04	1.215e+04	1.06	yes	no	1.016
17	Unk	OCDD	42:24	1.877e+04	2.102e+04	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:31	3.288e+04	4.190e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:37	4.742e+04	3.025e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:30	4.733e+04	3.012e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:07	2.141e+04	4.127e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:14	2.427e+04	4.596e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:43	2.263e+04	4.377e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:28	1.974e+04	3.753e+04	0.53	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	1.681e+04	3.668e+04	0.46	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	1.386e+04	3.076e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:16	2.374e+04	3.038e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:46	3.471e+04	2.188e+04	1.59	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:51	2.862e+04	2.250e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:56	2.929e+04	2.330e+04	1.26	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	2.502e+04	2.356e+04	1.06	yes	no	0.862
32	IS	13C-OCDD	42:23	3.443e+04	3.829e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:42	2.422e+04	3.102e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:10	3.083e+04	2.434e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:17	5.524e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #7 Filename P174024 Samp: 1 Inj: 1 Acquired: 11-OCT-14 02:07:17
Processed: 13-OCT-14 08:06:411 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.04e+05	6.00e+01	8.4e+03	6.34e+05	4.72e+02	1.3e+03
2	1,2,3,7,8-PeCDF	5.07e+06	2.32e+02	2.2e+04	3.20e+06	3.96e+02	8.1e+03
3	2,3,4,7,8-PeCDF	5.06e+06	2.32e+02	2.2e+04	3.07e+06	3.96e+02	7.8e+03
4	1,2,3,4,7,8-HxCDF	5.47e+06	2.00e+02	2.7e+04	4.24e+06	4.40e+02	9.6e+03
5	1,2,3,6,7,8-HxCDF	5.35e+06	2.00e+02	2.7e+04	4.21e+06	4.40e+02	9.6e+03
6	2,3,4,6,7,8-HxCDF	5.19e+06	2.00e+02	2.6e+04	4.14e+06	4.40e+02	9.4e+03
7	1,2,3,7,8,9-HxCDF	4.43e+06	2.00e+02	2.2e+04	3.46e+06	4.40e+02	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	4.89e+06	2.76e+03	1.8e+03	4.58e+06	8.96e+02	5.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.39e+06	2.76e+03	1.2e+03	3.22e+06	8.96e+02	3.6e+03
10	OCDF	4.24e+06	1.24e+02	3.4e+04	4.61e+06	4.20e+02	1.1e+04
11	2,3,7,8-TCDD	4.33e+05	2.52e+02	1.7e+03	5.30e+05	1.00e+02	5.3e+03
12	1,2,3,7,8-PeCDD	3.27e+06	4.08e+02	8.0e+03	2.10e+06	8.40e+01	2.5e+04
13	1,2,3,4,7,8-HxCDD	3.26e+06	1.00e+02	3.3e+04	2.66e+06	1.72e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	3.25e+06	1.00e+02	3.2e+04	2.61e+06	1.72e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	3.43e+06	1.00e+02	3.4e+04	2.69e+06	1.72e+02	1.6e+04
16	1,2,3,4,6,7,8-HpCDD	2.73e+06	9.60e+01	2.8e+04	2.59e+06	1.00e+02	2.6e+04
17	OCDD	3.39e+06	8.80e+01	3.9e+04	3.84e+06	2.52e+02	1.5e+04
18	13C-2,3,7,8-TCDF	5.81e+06	6.92e+02	8.4e+03	7.36e+06	8.28e+02	8.9e+03
19	13C-1,2,3,7,8-PeCDF	9.05e+06	8.80e+01	1.0e+05	5.76e+06	1.00e+02	5.8e+04
20	13C-2,3,4,7,8-PeCDF	9.45e+06	8.80e+01	1.1e+05	6.11e+06	1.00e+02	6.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.84e+06	6.84e+02	7.1e+03	9.32e+06	7.96e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	5.28e+06	6.84e+02	7.7e+03	9.86e+06	7.96e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.10e+06	6.84e+02	7.5e+03	9.89e+06	7.96e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.31e+06	6.84e+02	6.3e+03	8.14e+06	7.96e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.81e+06	7.88e+02	4.8e+03	8.33e+06	3.48e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.88e+06	7.88e+02	3.7e+03	6.28e+06	3.48e+03	1.8e+03
27	13C-2,3,7,8-TCDD	4.45e+06	2.18e+03	2.0e+03	5.72e+06	9.60e+02	6.0e+03
28	13C-1,2,3,7,8-PeCDD	7.08e+06	3.28e+02	2.2e+04	4.49e+06	7.20e+01	6.2e+04
29	13C-1,2,3,4,7,8-HxCDD	6.62e+06	1.04e+03	6.4e+03	5.12e+06	6.80e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.47e+06	1.04e+03	6.2e+03	5.16e+06	6.80e+02	7.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.38e+06	5.64e+02	9.5e+03	5.06e+06	1.08e+02	4.7e+04
32	13C-OCDD	6.16e+06	2.76e+02	2.2e+04	6.98e+06	5.20e+01	1.3e+05
33	13C-1,2,3,4-TCDD	4.43e+06	2.18e+03	2.0e+03	5.65e+06	9.60e+02	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	6.81e+06	1.04e+03	6.5e+03	5.38e+06	6.80e+02	7.9e+03
35	37Cl-2,3,7,8-TCDD	1.01e+06	8.60e+02	1.2e+03			

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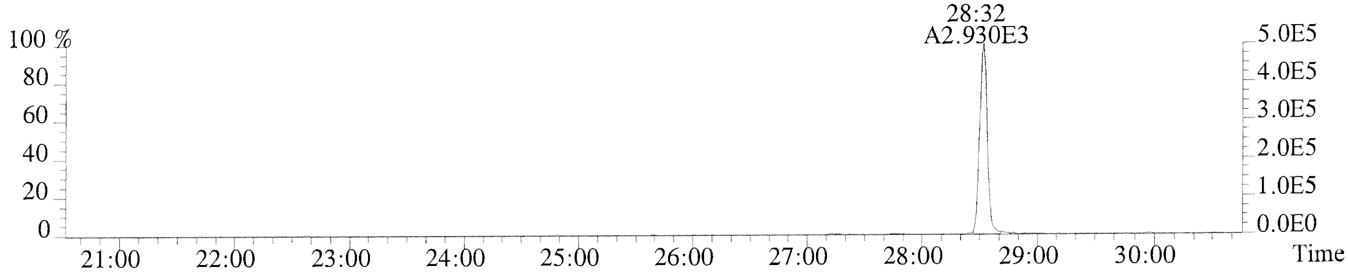
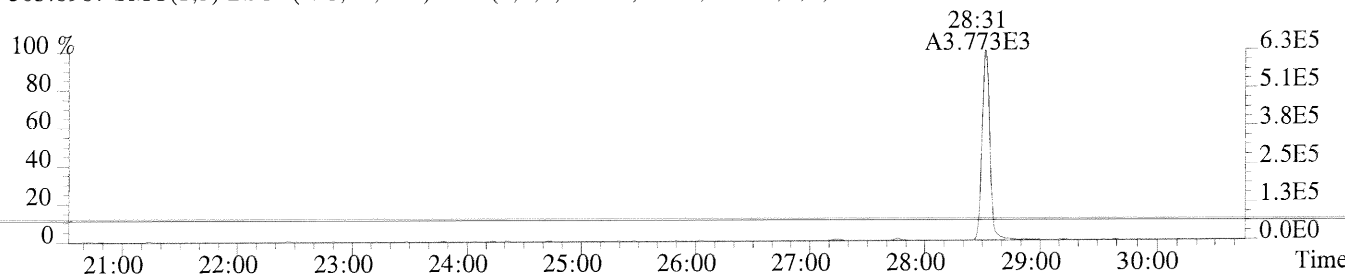
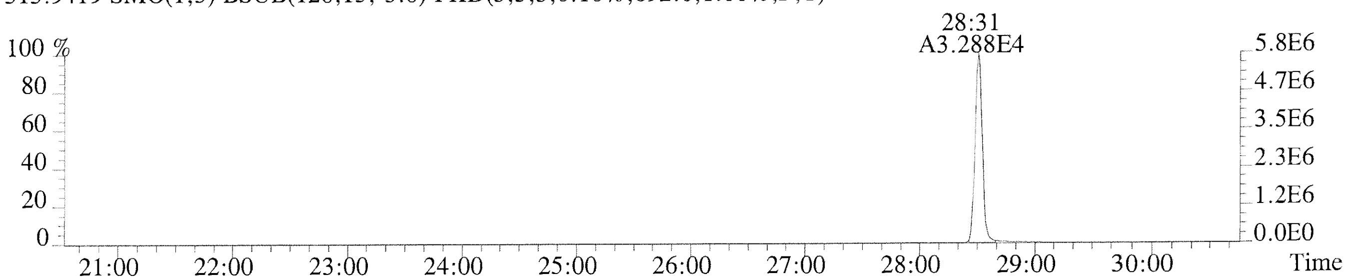
File:P174024 #1-788 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



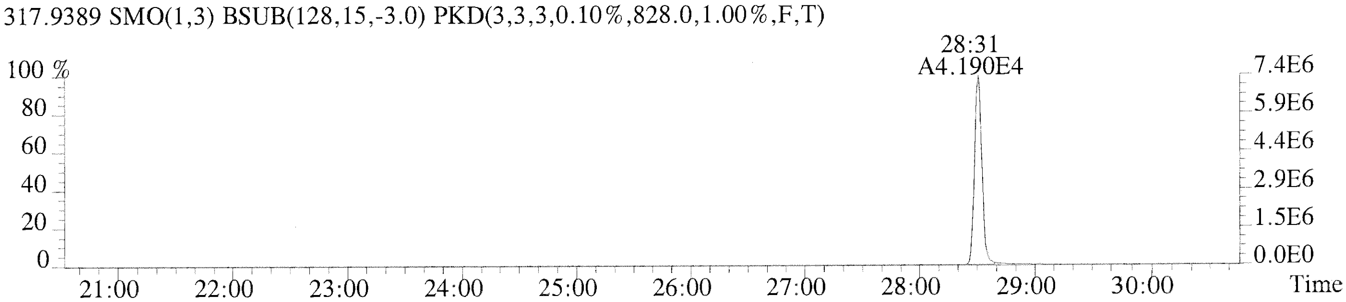
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



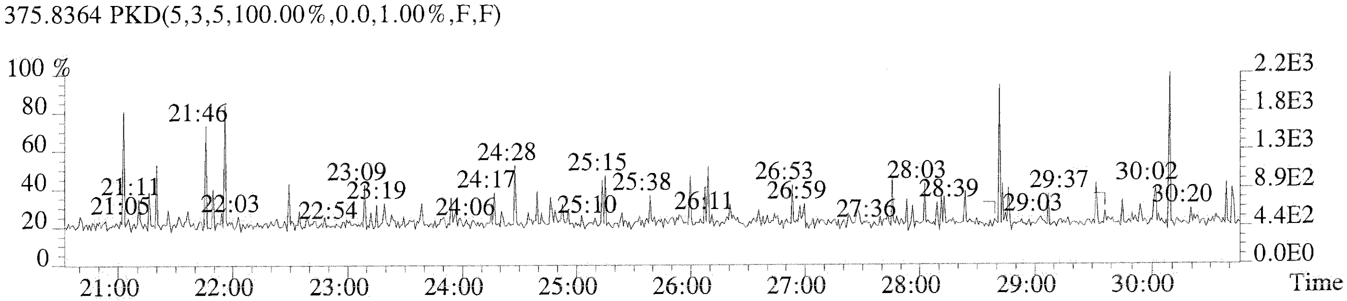
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



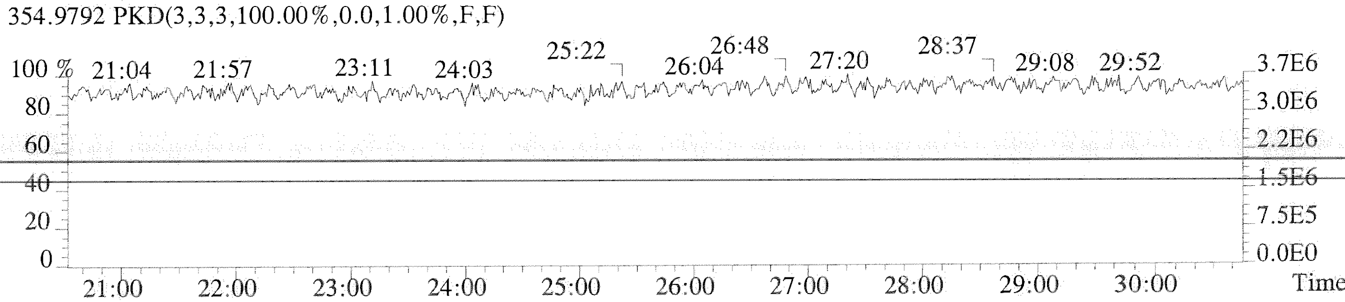
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

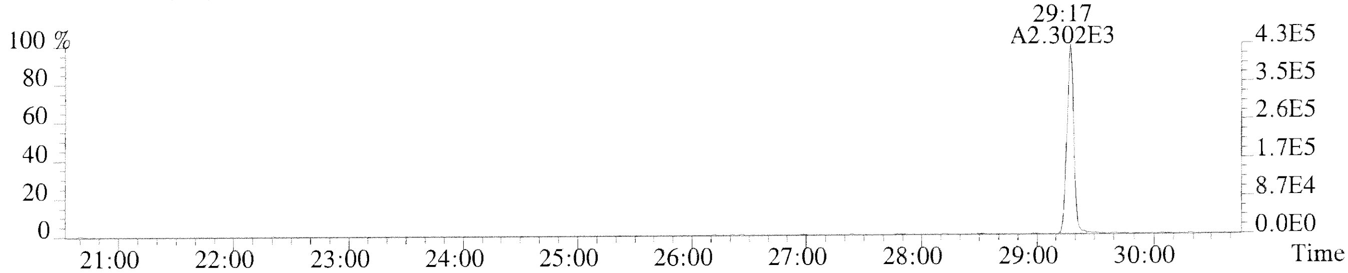


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

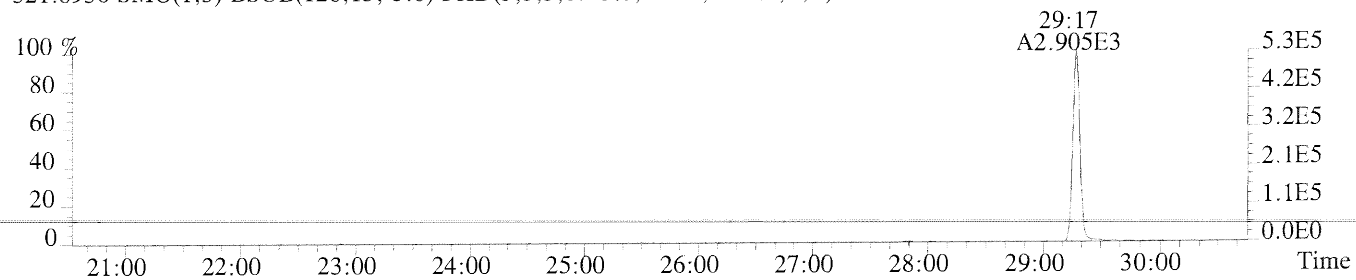


File:P174024 #1-788 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

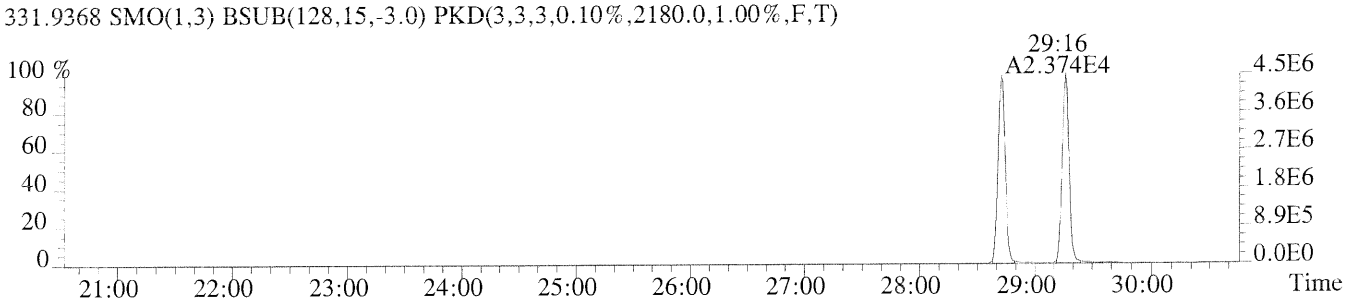
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



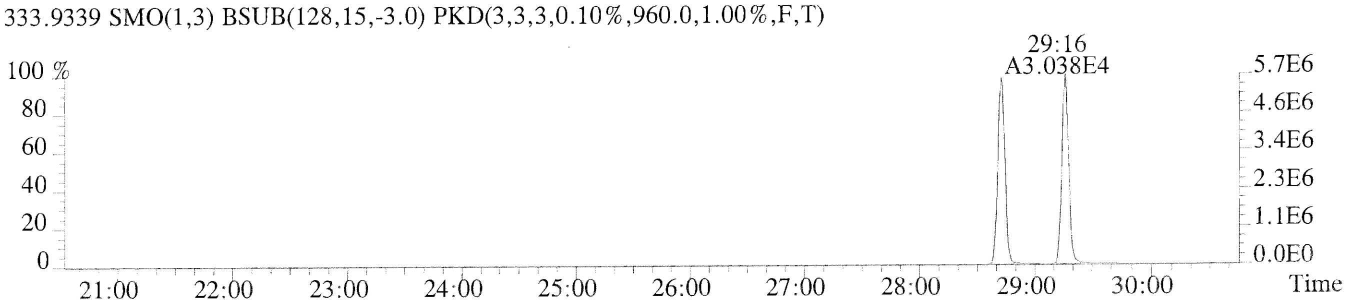
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



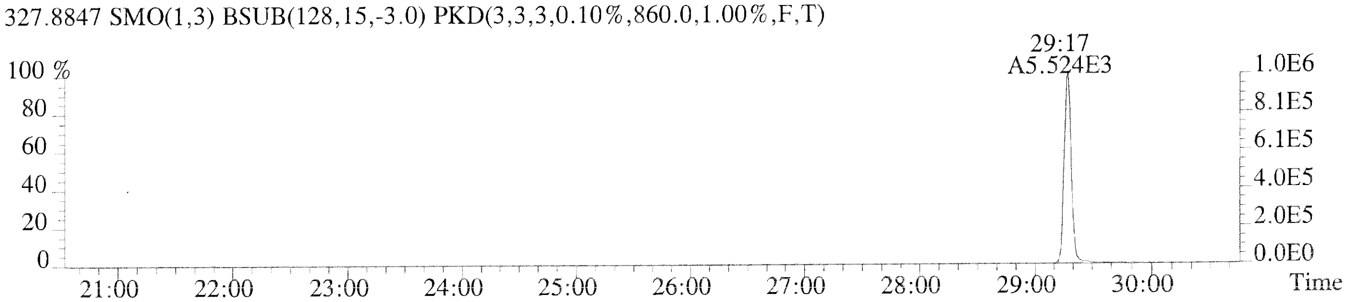
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



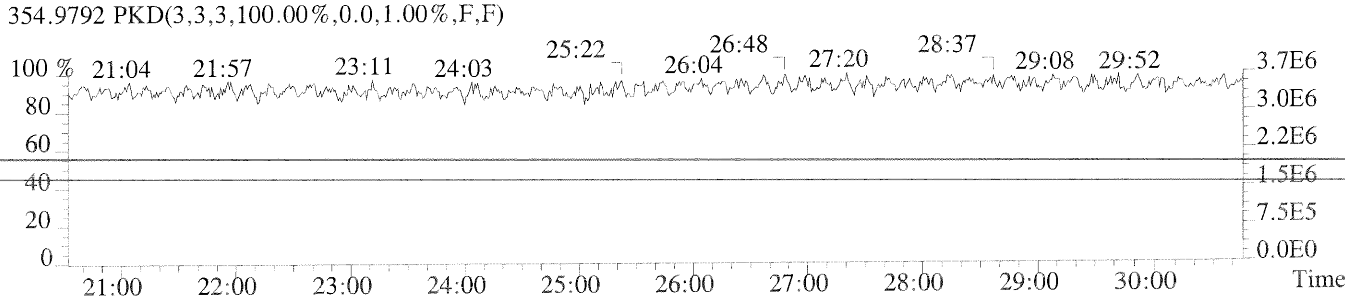
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



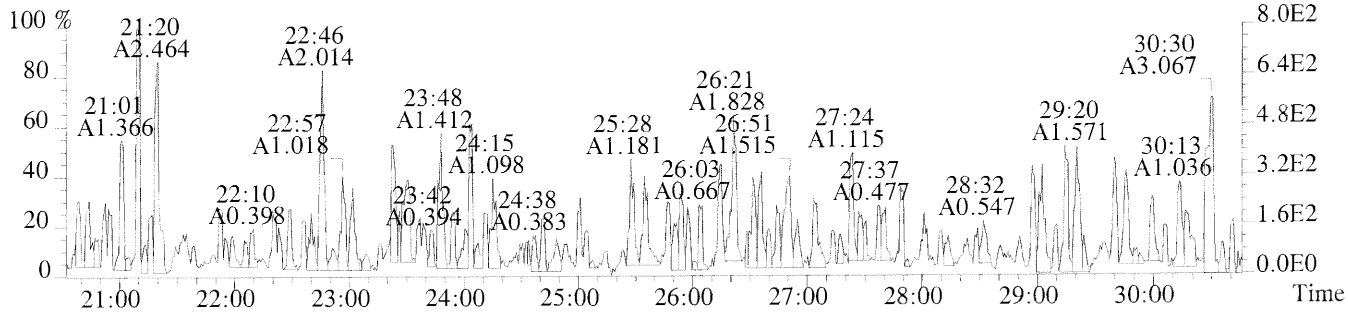
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



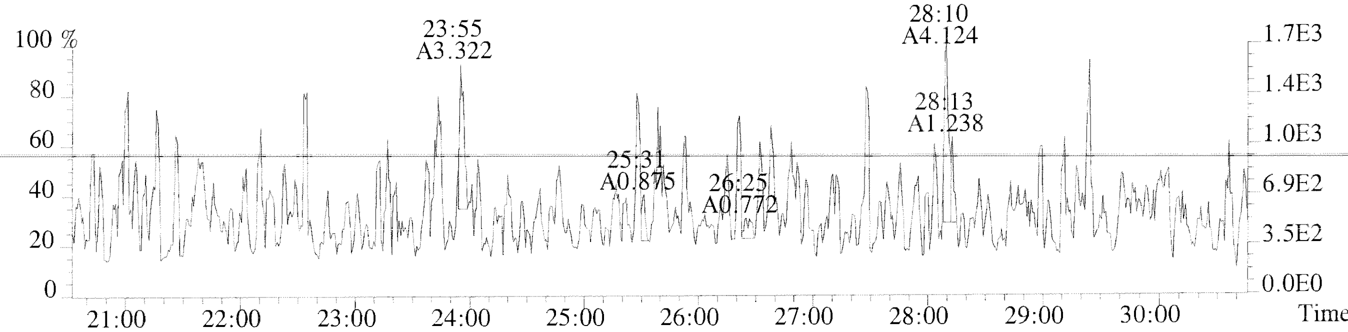
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



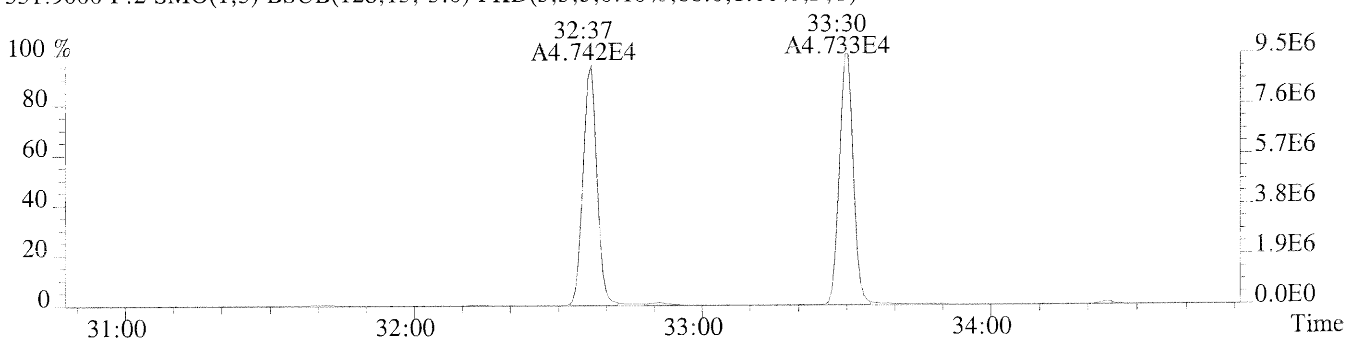
File:P174024 #1-788 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



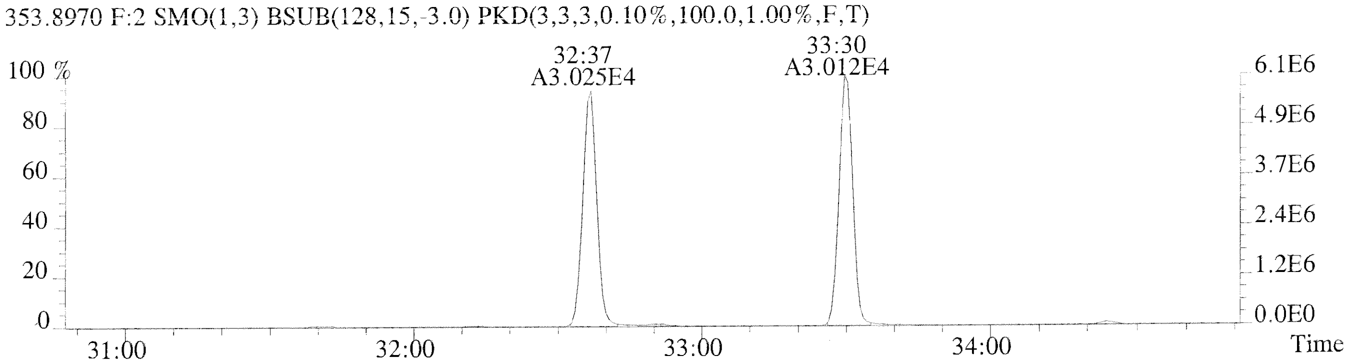
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



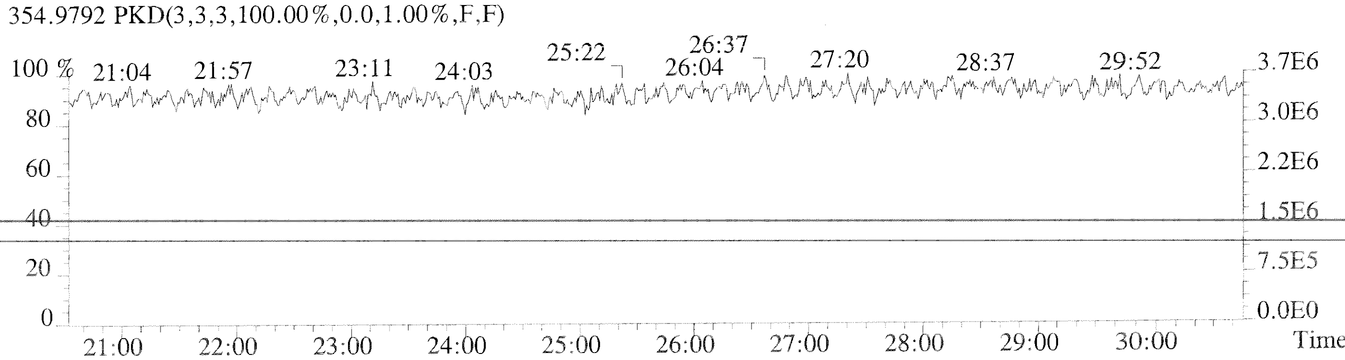
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,88.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)

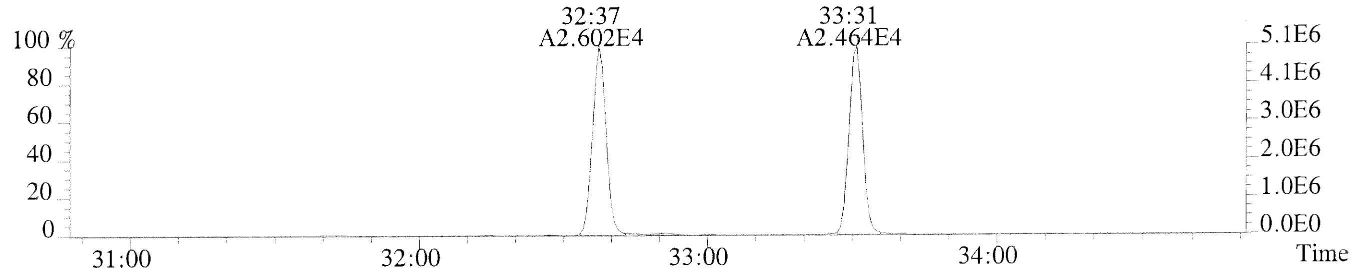


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

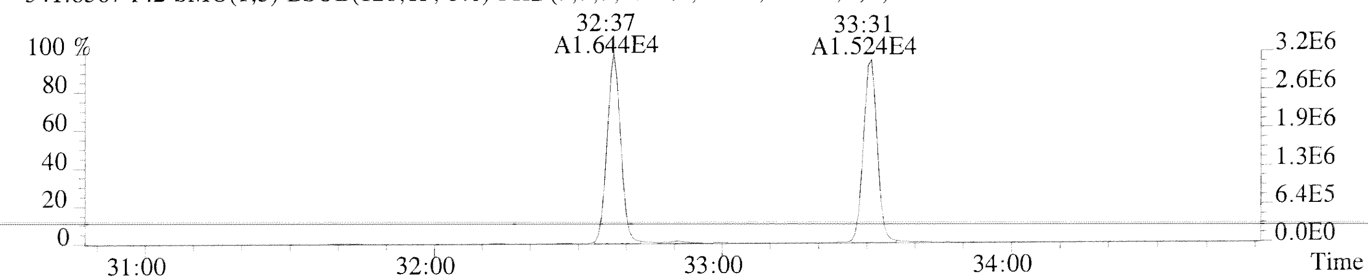


File:P174024 #1-369 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

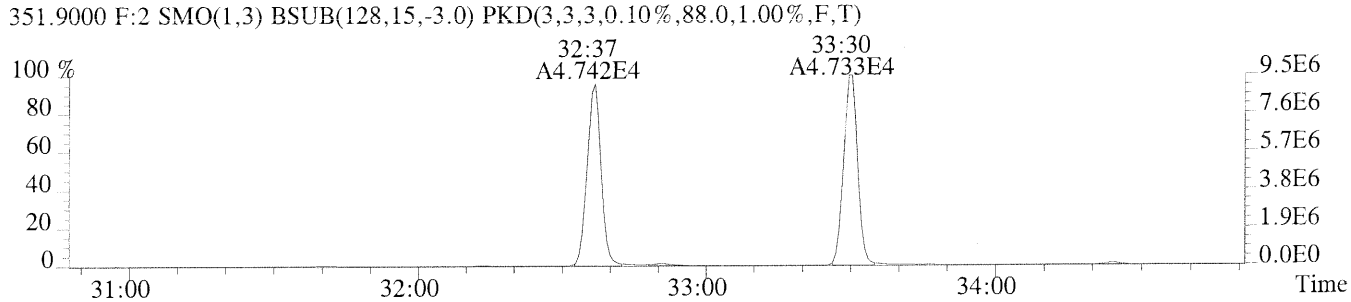
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



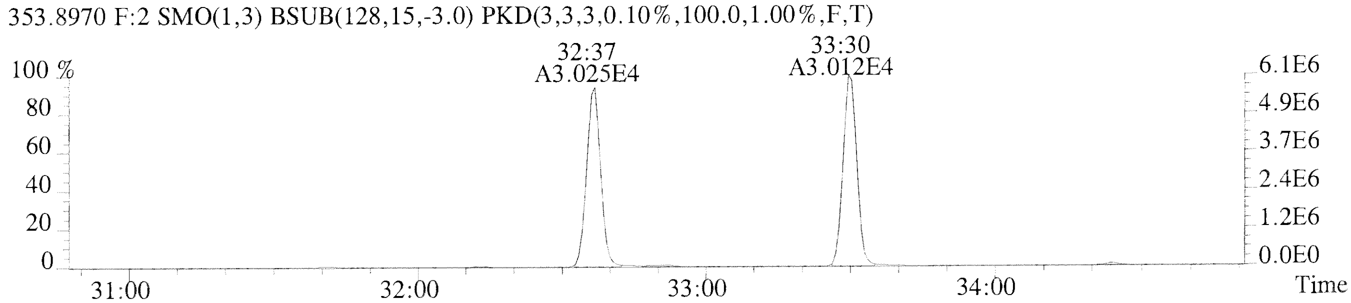
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



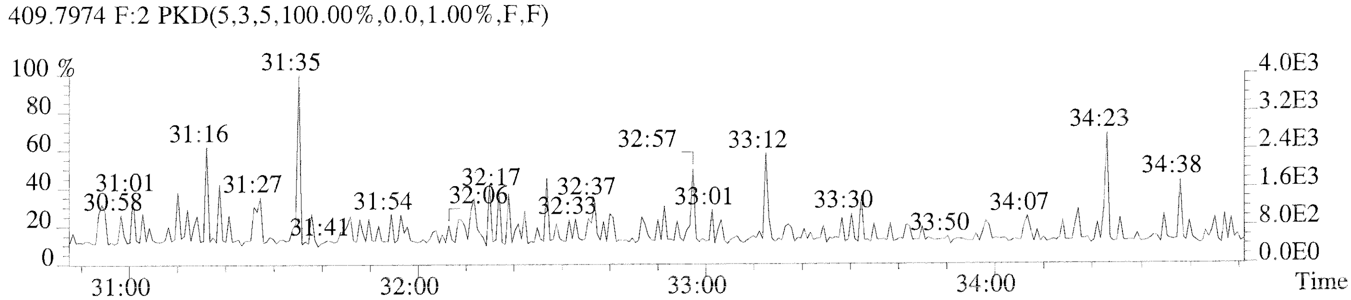
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,88.0,1.00%,F,T)



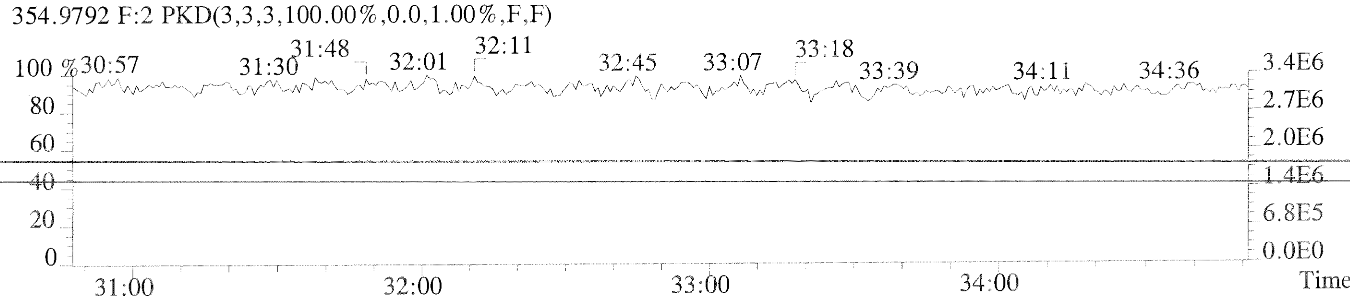
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

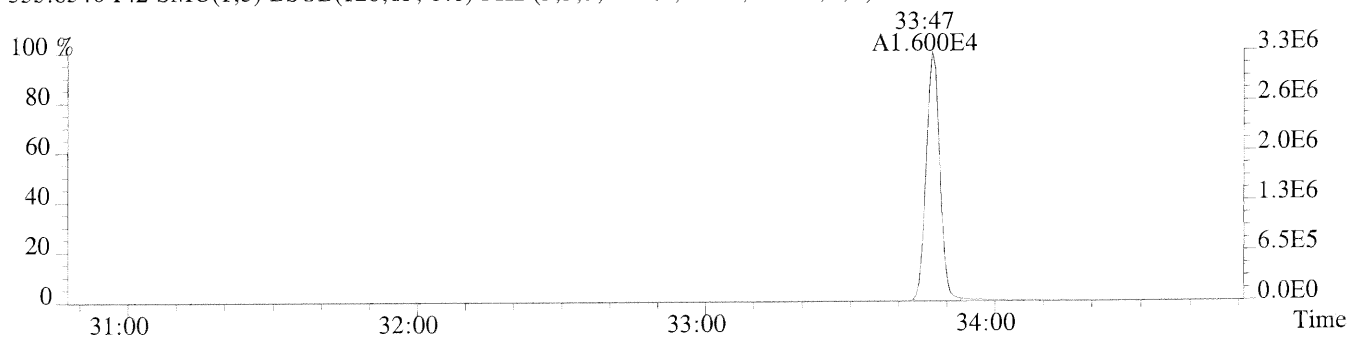


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

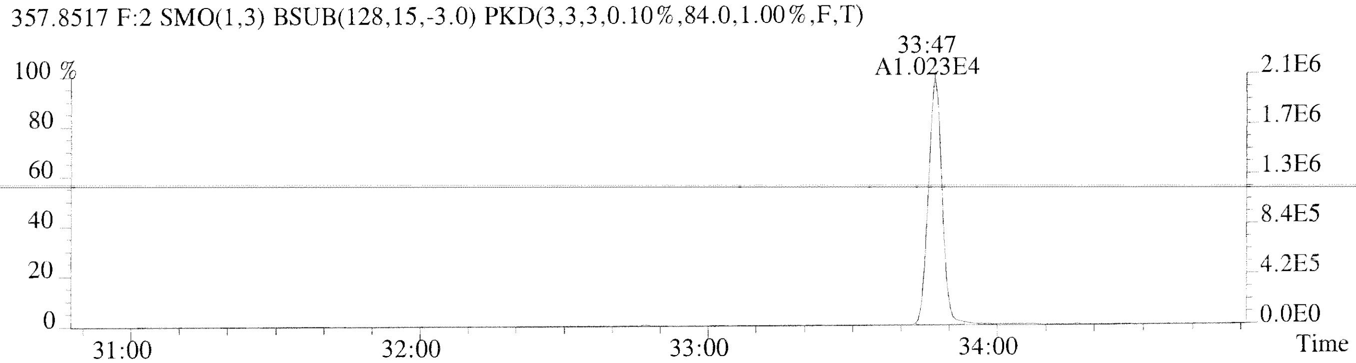


File:P174024 #1-369 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

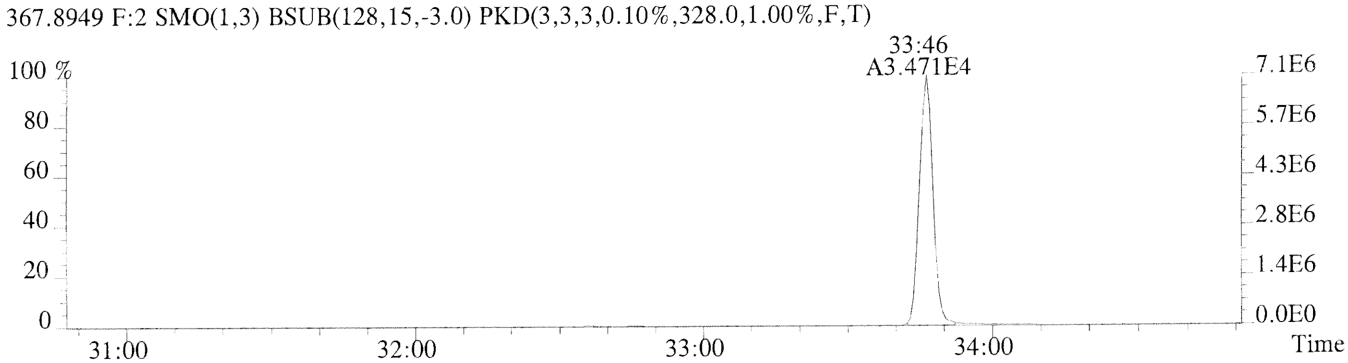
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



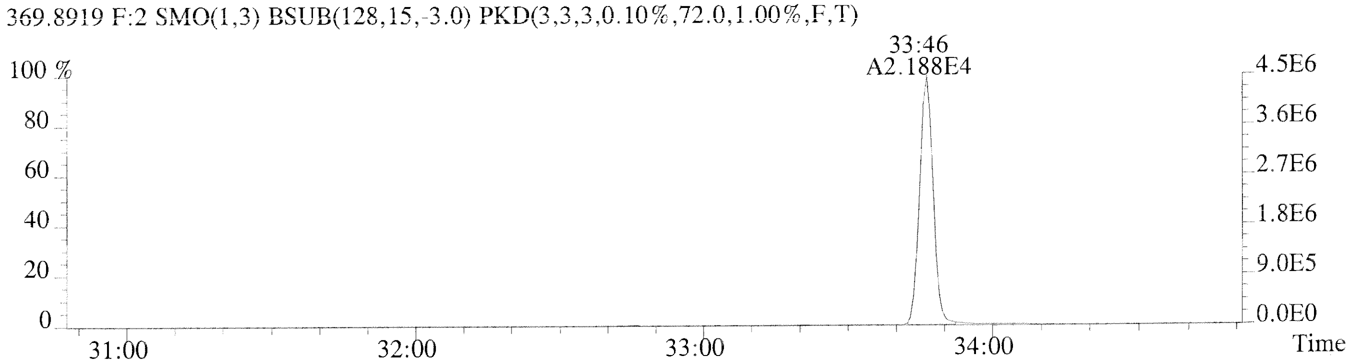
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,84.0,1.00%,F,T)



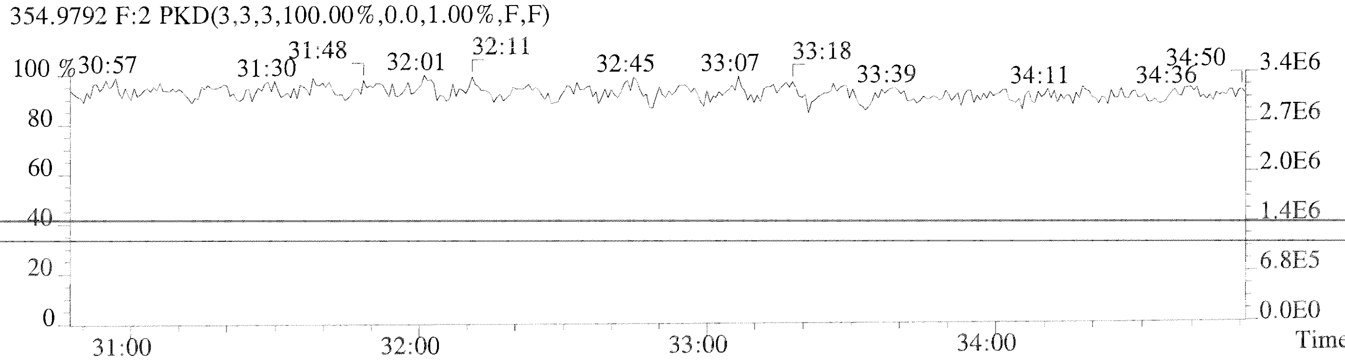
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)

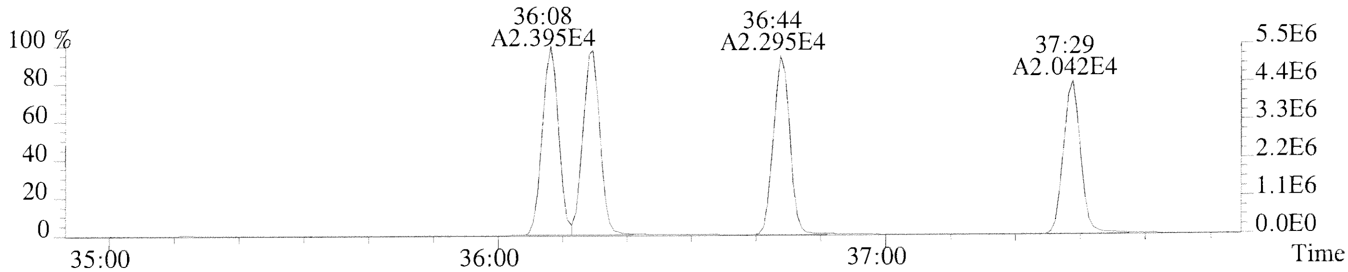


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

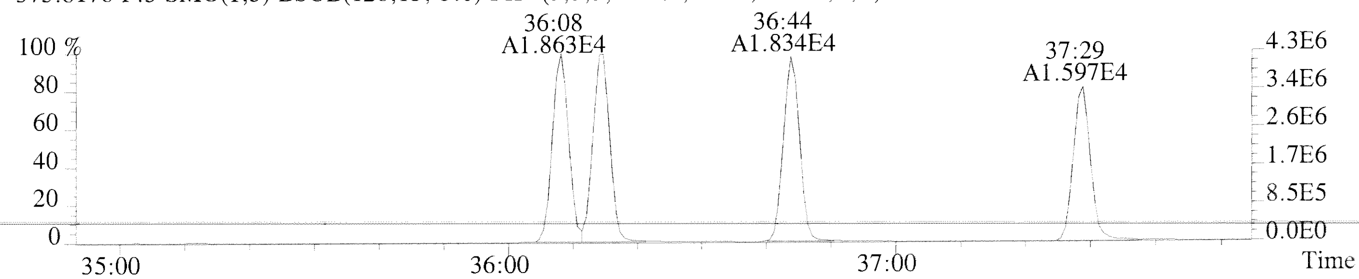


File:P174024 #1-275 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

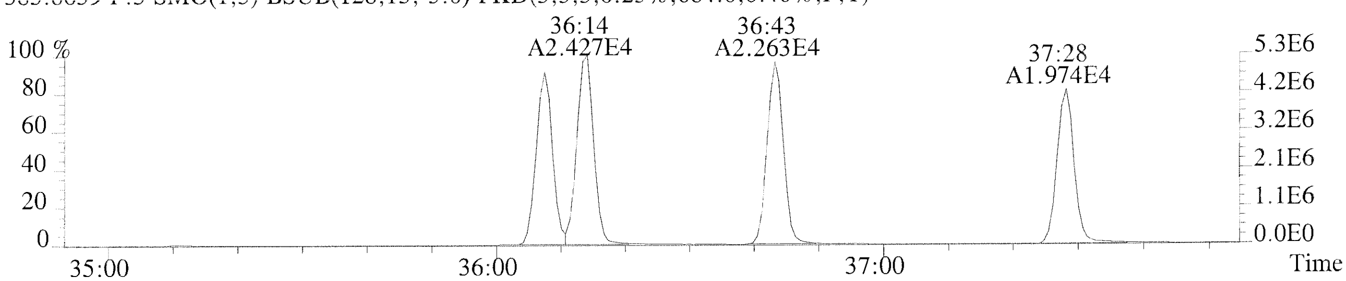
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



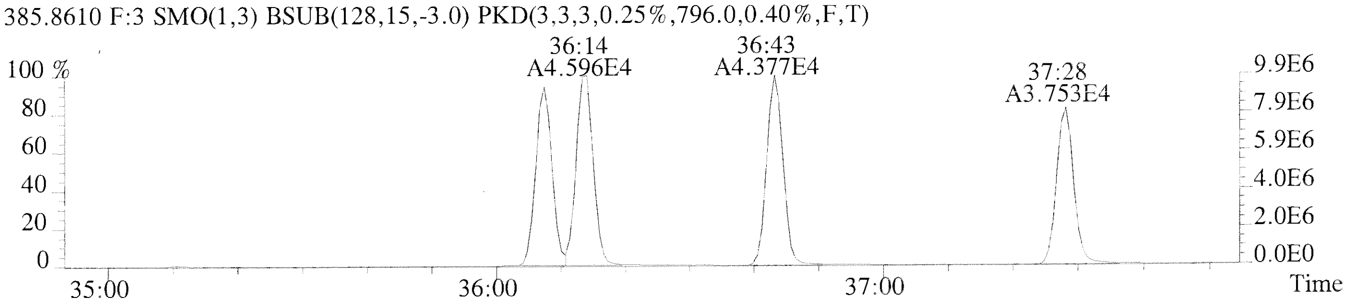
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



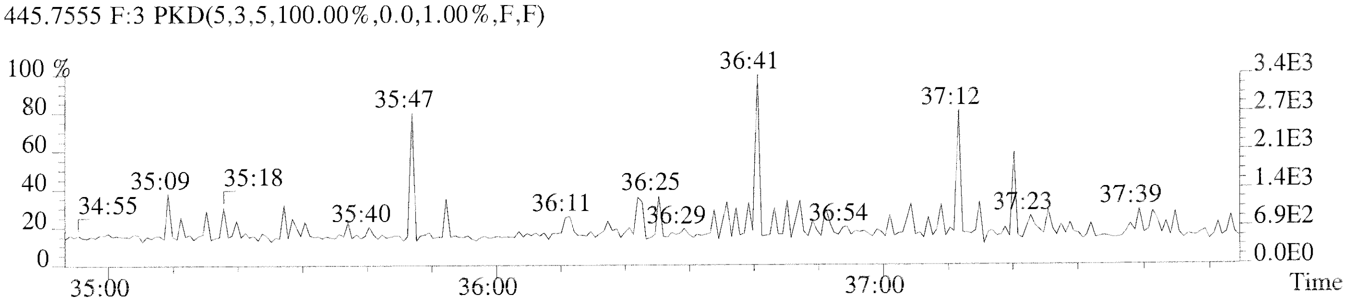
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



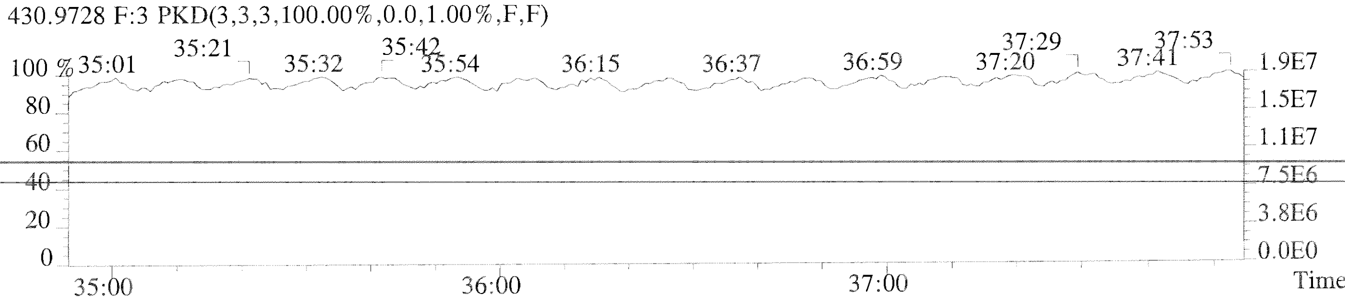
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



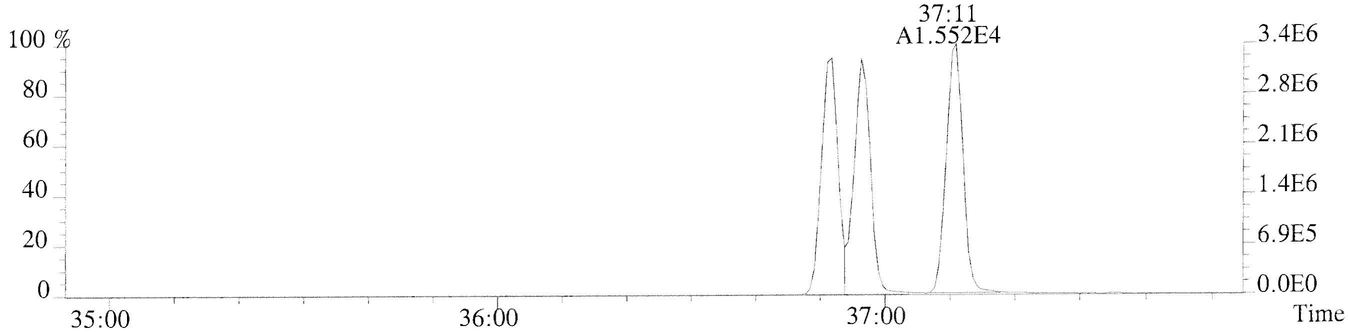
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



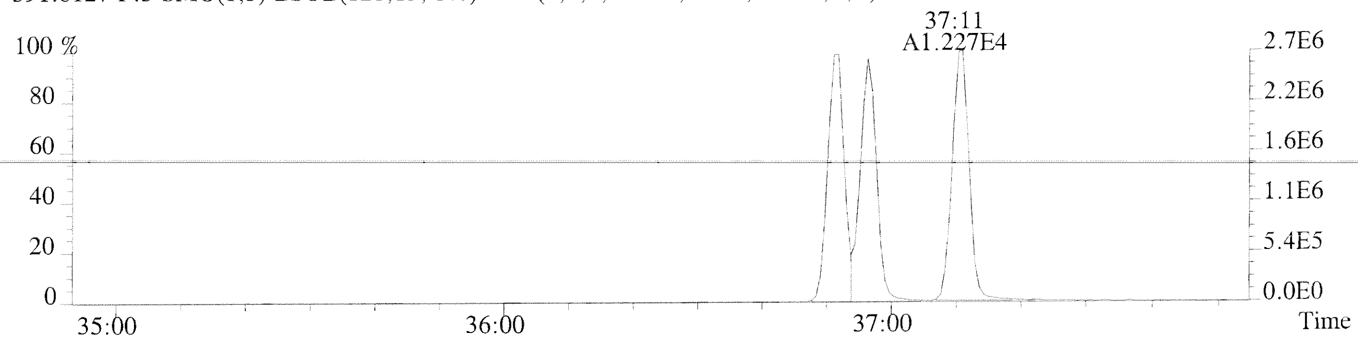
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



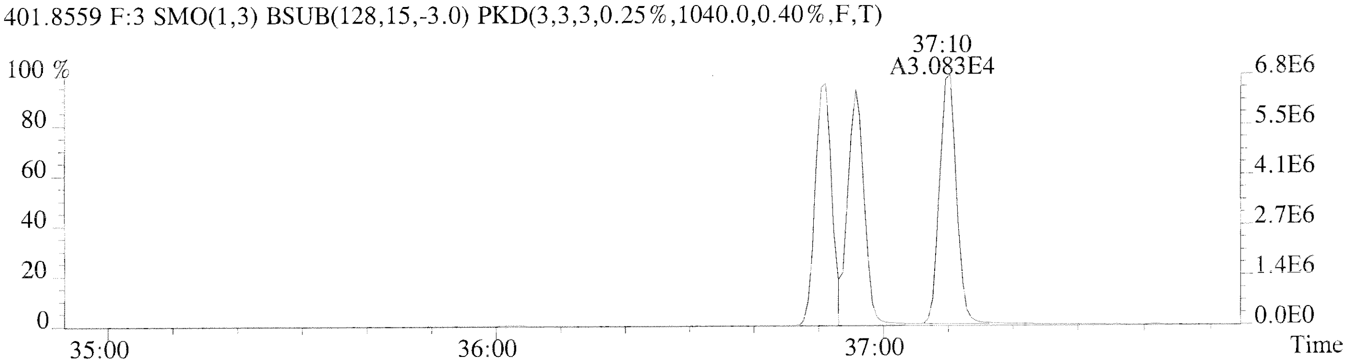
File:P174024 #1-275 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



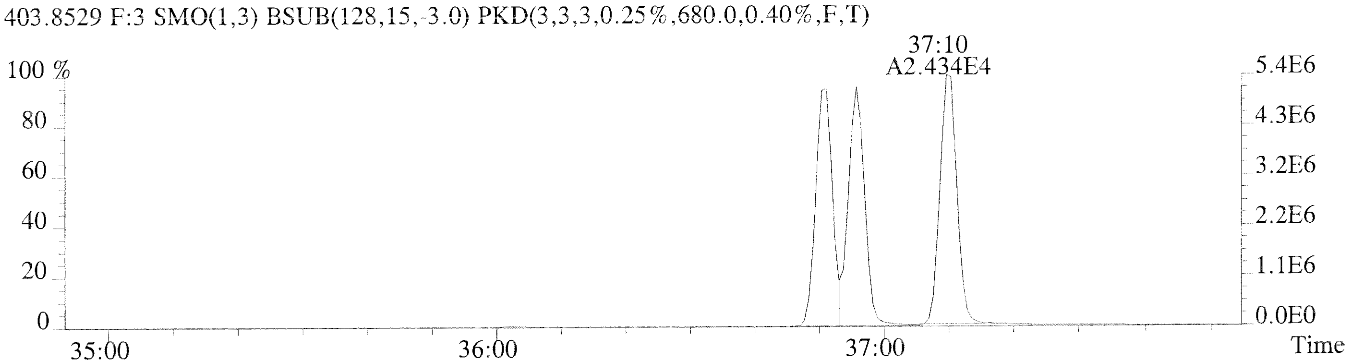
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



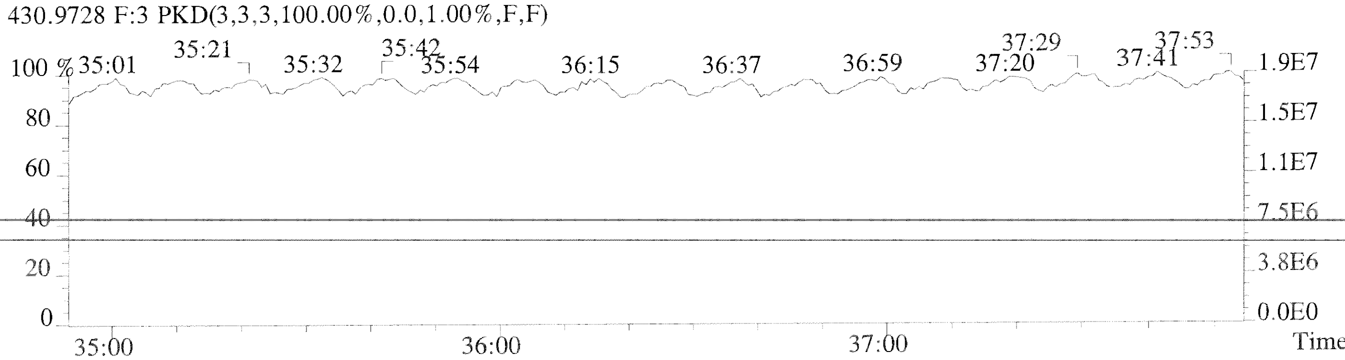
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)

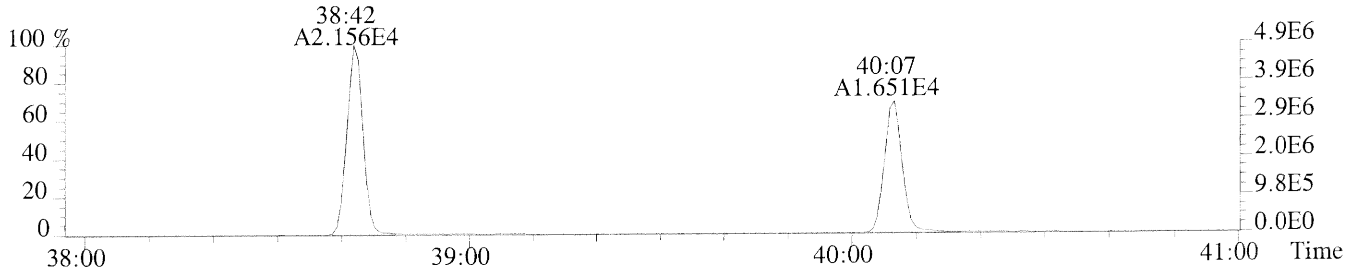


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

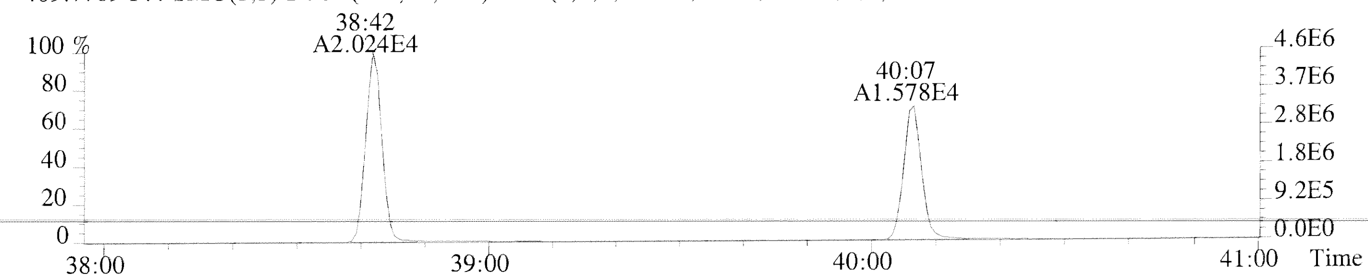


File:P174024 #1-278 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

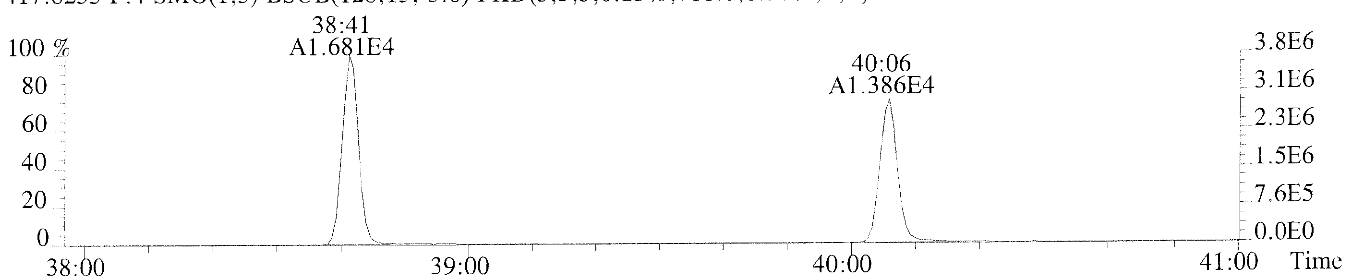
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2760.0,0.50%,F,T)



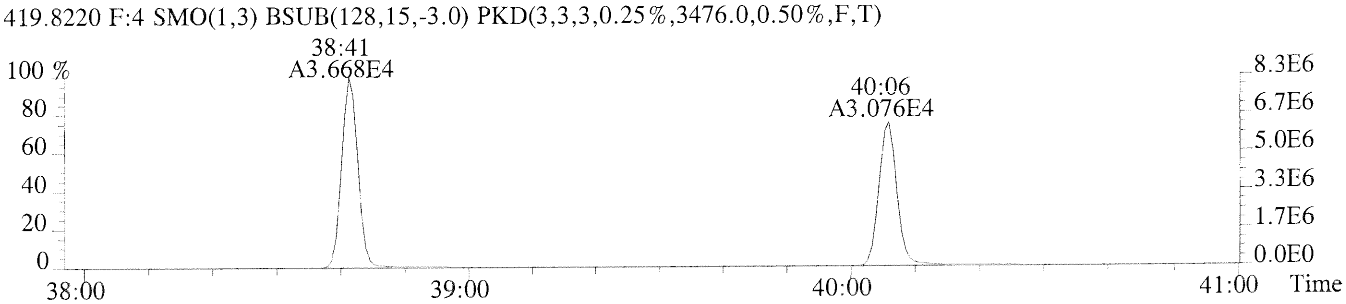
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.50%,F,T)



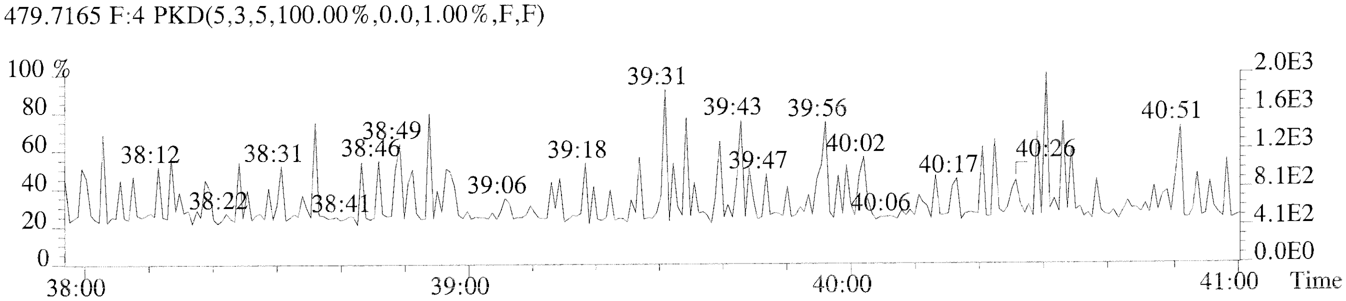
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.50%,F,T)



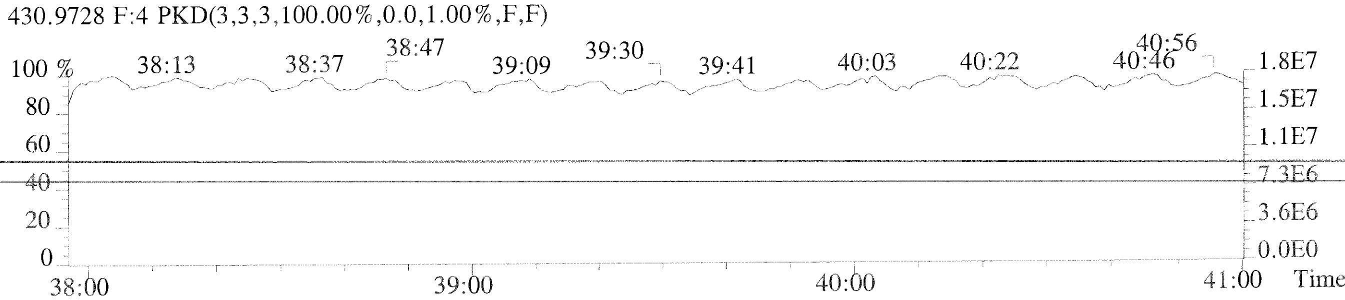
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3476.0,0.50%,F,T)



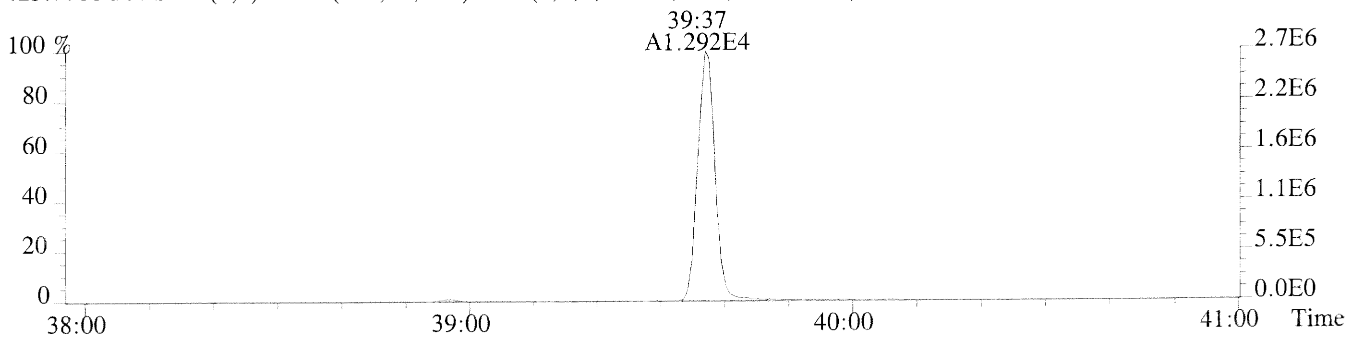
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



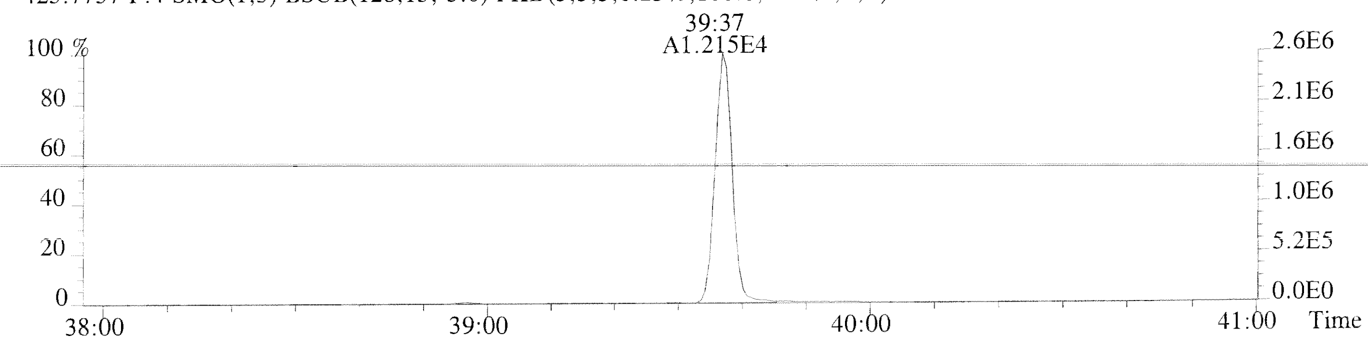
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



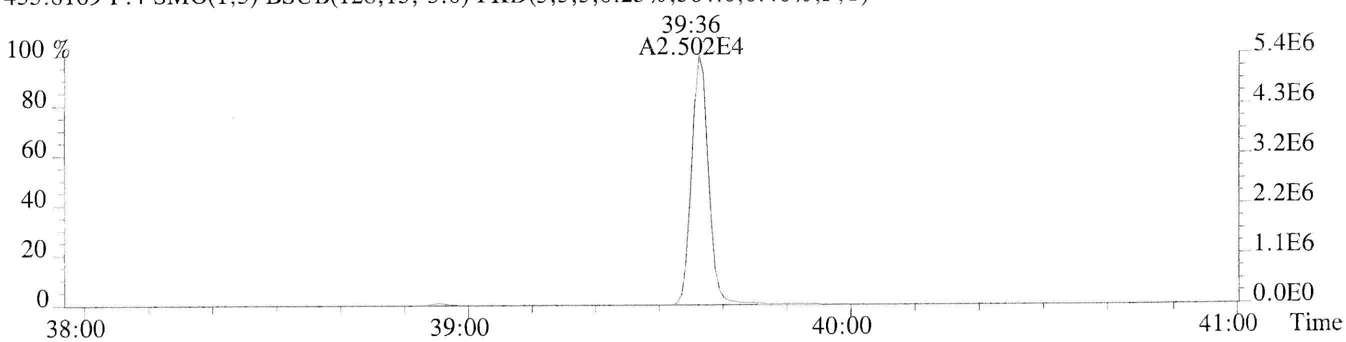
File:P174024 #1-278 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



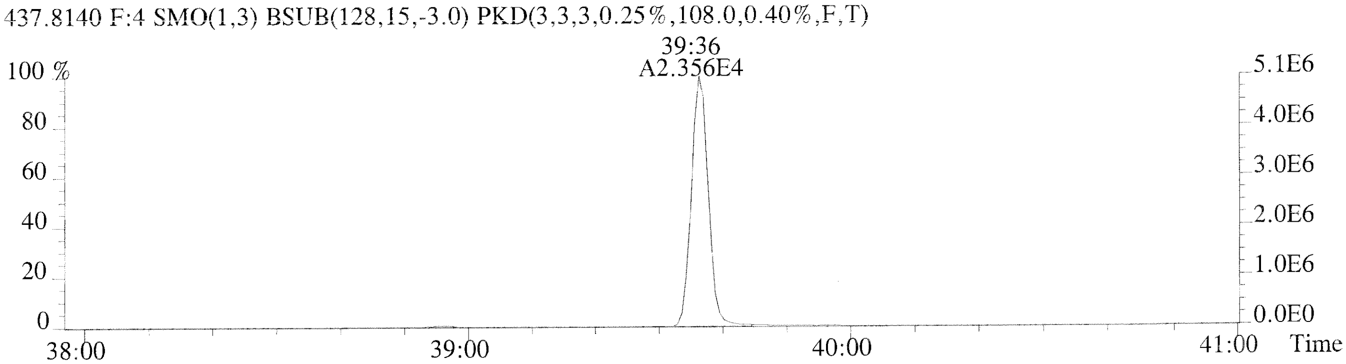
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



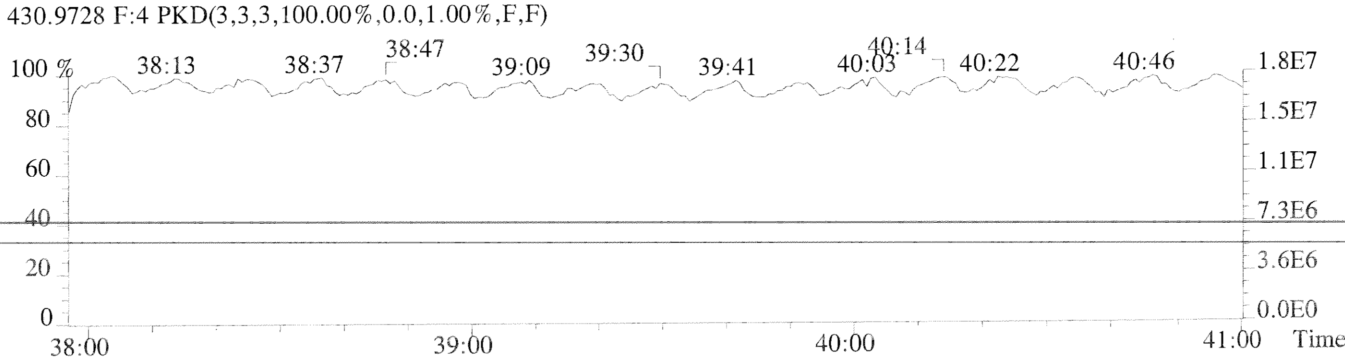
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)

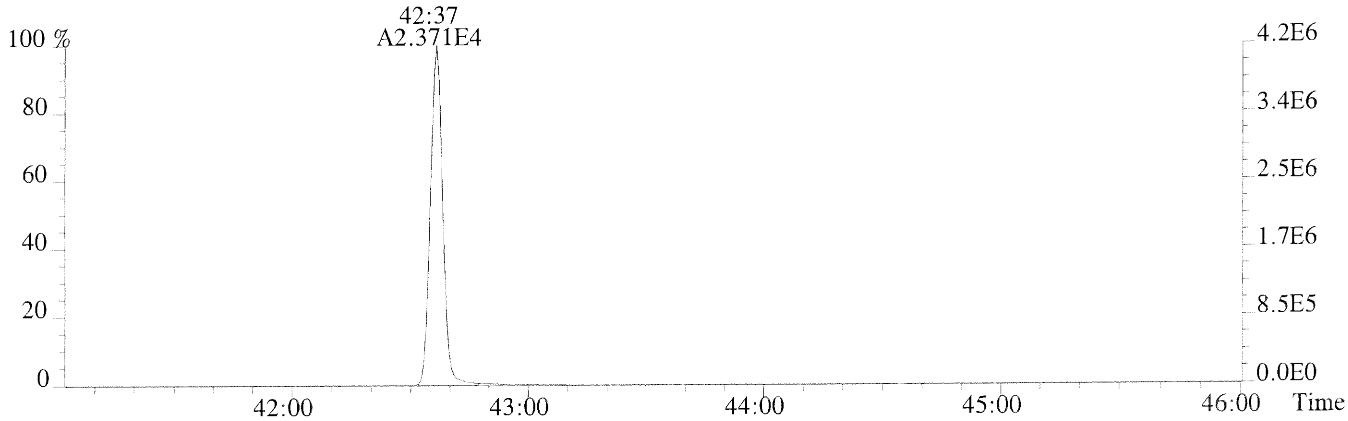


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

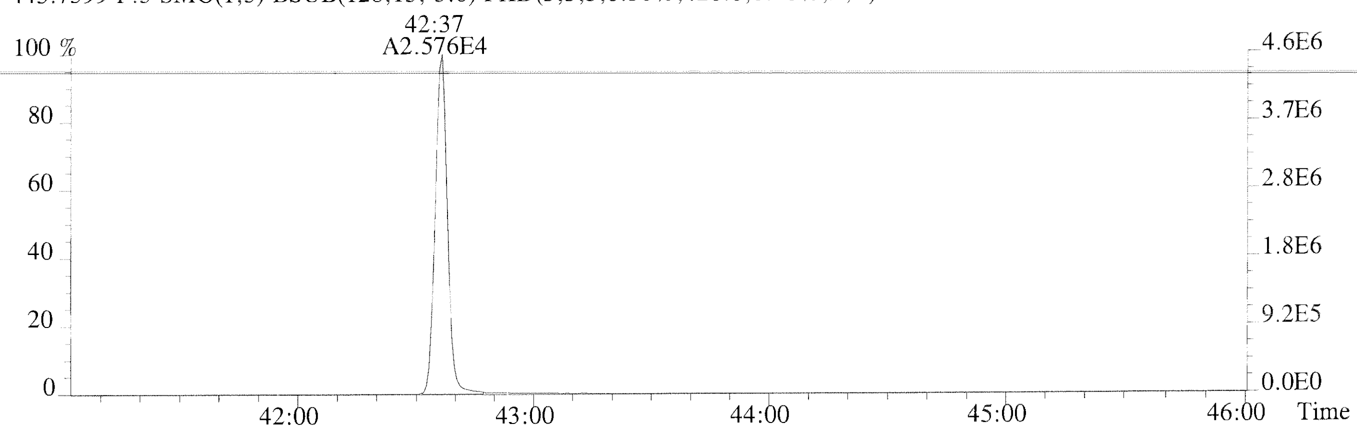


File:P174024 #1-457 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

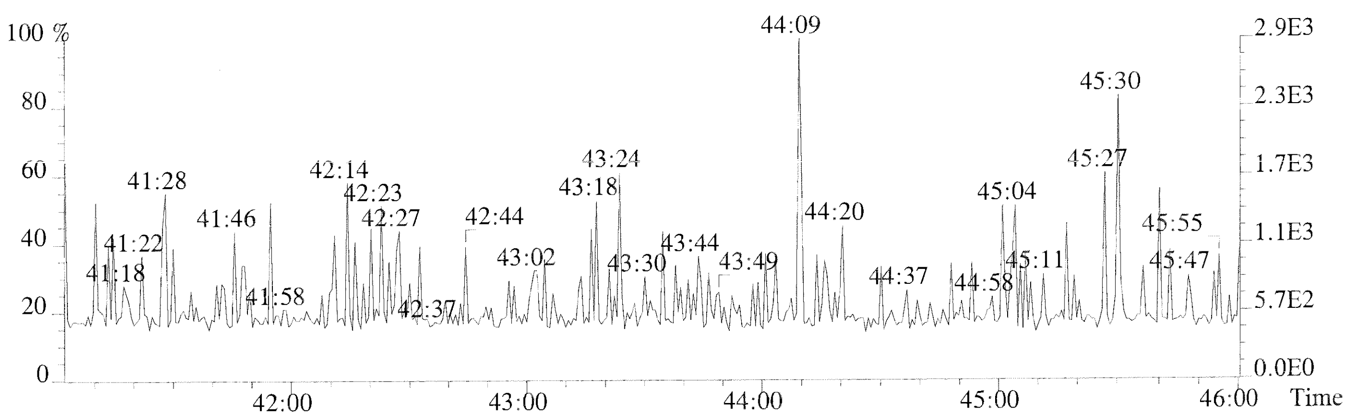
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



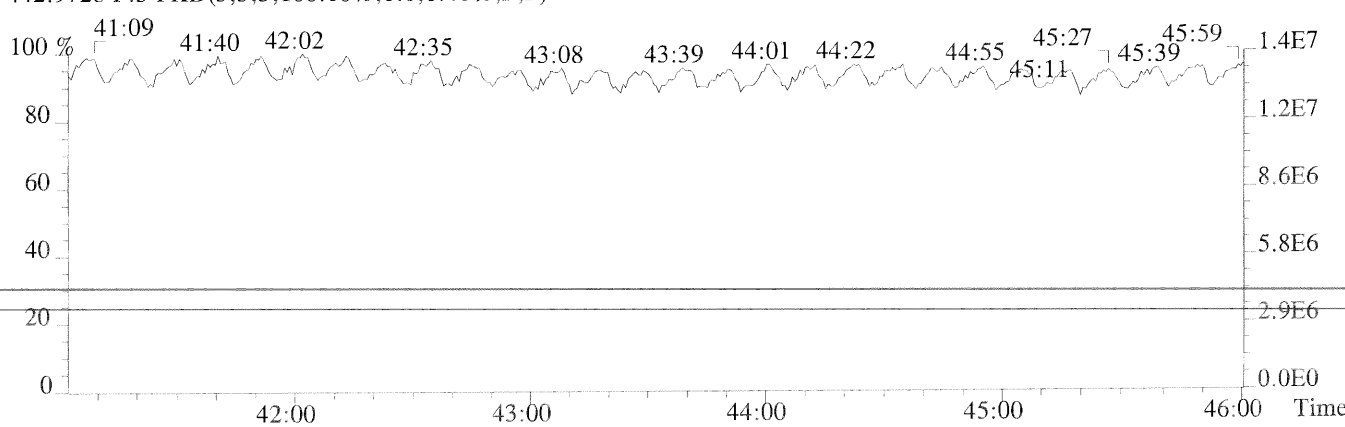
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

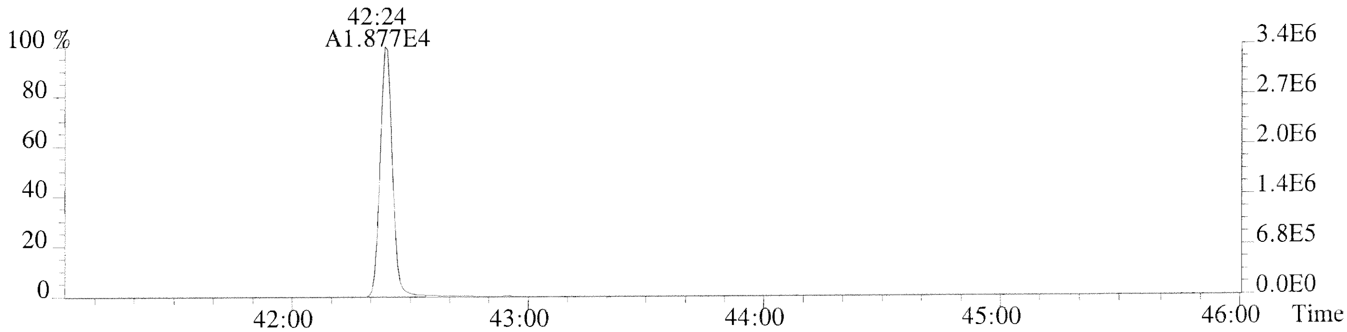


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

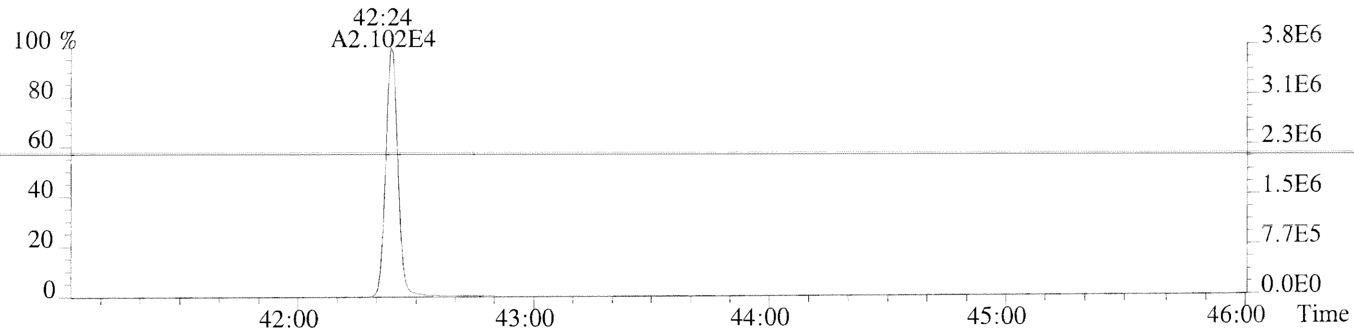


File:P174024 #1-457 Acq:11-OCT-2014 02:07:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

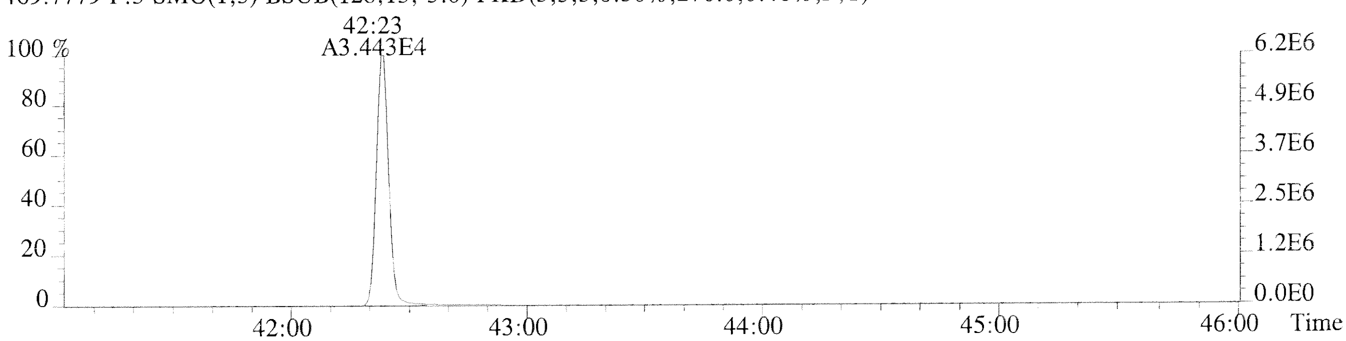
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,88.0,0.40%,F,T)



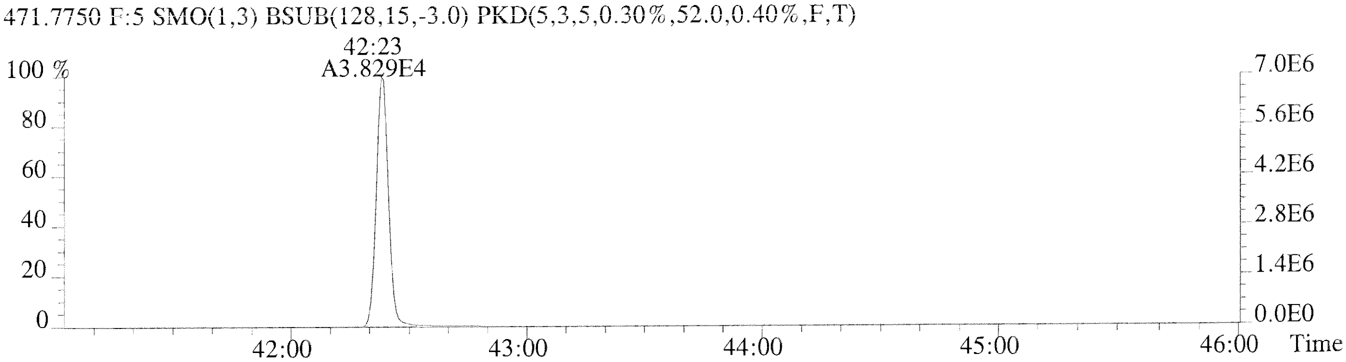
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



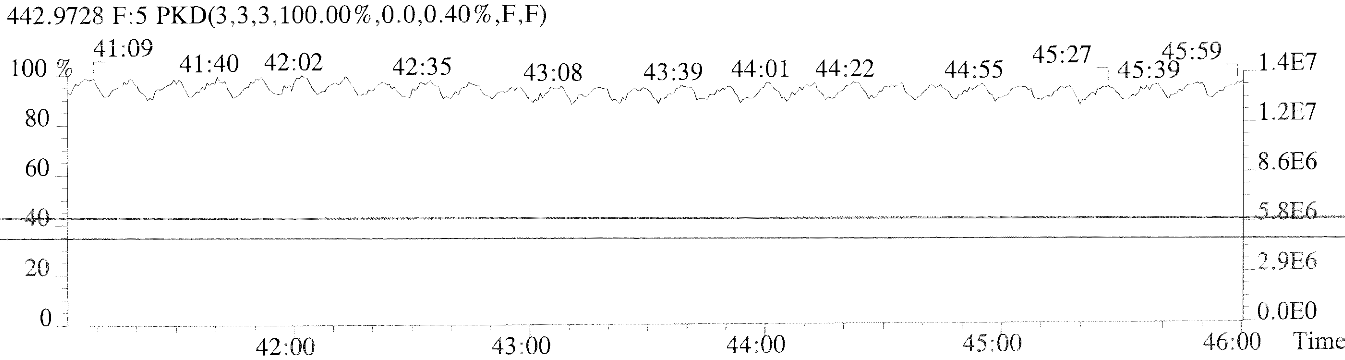
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,52.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P174036 Analysis Date: 11-OCT-14 Time: 11:57:38

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.4	7.8 - 12.9	-5.8
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	-0.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	51	39 - 64	2.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.3
OCDD	M+2/M+4	0.88	0.76-1.02	102	79 - 126	2.2
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.7	8.4 - 12.0	-3.4
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	54	41 - 60	7.1
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	53	41 - 61	5.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	54	45 - 56	7.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	54	44 - 57	7.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	55	45 - 56	10.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	55	44 - 57	9.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	55	45 - 55	9.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.08	0.88-1.20	54	43 - 58	8.4
OCDF	M+2/M+4	0.93	0.76-1.02	106	63 - 159	6.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- ~~20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4,~~ Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P174036   Analysis Date: 11-OCT-14 Time: 11:57:38

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	94	82 - 121	-6.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	75	62 - 160	-25.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	110	85 - 117	10.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 118	-4.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	86	72 - 138	-14.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	139	96 - 415	-30.5
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	74	76 - 130	-26.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	74	77 - 130	-25.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	111	76 - 131	11.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	105	70 - 143	5.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	92	74 - 135	-7.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	106	73 - 137	6.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	85	78 - 129	-14.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	84	77 - 129	-16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.0	7.8 - 12.7	-10.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #8 Filename P174036 Samp: 1 Inj: 1 Acquired: 11-OCT-14 11:57:38
Processed: 13-OCT-14 08:06:51 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:34	5.551e+03	7.268e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	32:40	4.781e+04	2.976e+04	1.61	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:32	4.393e+04	2.783e+04	1.58	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:10	3.922e+04	3.137e+04	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:16	4.077e+04	3.206e+04	1.27	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	36:46	3.829e+04	3.007e+04	1.27	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:30	3.086e+04	2.413e+04	1.28	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	38:44	2.811e+04	2.640e+04	1.06	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:08	2.315e+04	2.152e+04	1.08	yes	no	1.324
10	Unk	OCDF	42:39	3.204e+04	3.460e+04	0.93	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:19	4.374e+03	5.637e+03	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	33:49	2.934e+04	1.851e+04	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	36:53	2.506e+04	1.971e+04	1.27	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	36:58	2.315e+04	1.882e+04	1.23	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:12	2.507e+04	2.028e+04	1.24	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	39:39	1.776e+04	1.693e+04	1.05	yes	no	1.016
17	Unk	OCDD	42:26	2.476e+04	2.811e+04	0.88	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	28:32	6.141e+04	7.898e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	32:38	8.724e+04	5.513e+04	1.58	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:32	8.530e+04	5.434e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	3.619e+04	6.944e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	3.957e+04	7.574e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	3.735e+04	7.111e+04	0.53	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:30	2.950e+04	5.681e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:43	2.179e+04	4.892e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:07	1.932e+04	4.294e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:17	4.499e+04	5.752e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	33:48	6.282e+04	3.988e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	36:53	4.815e+04	3.818e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	36:58	4.621e+04	3.647e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:38	3.455e+04	3.287e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	42:26	4.552e+04	5.039e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	28:45	4.605e+04	5.836e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:12	5.029e+04	4.079e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:19	1.055e+04				no	1.125

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #8 Filename P174036 Samp: 1 Inj: 1 Acquired: 11-OCT-14 11:57:38
Processed: 13-OCT-14 08:06:511 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.01e+06	1.12e+02	9.0e+03	1.29e+06	5.04e+02	2.6e+03
2	1,2,3,7,8-PeCDF	9.30e+06	3.88e+02	2.4e+04	5.75e+06	7.08e+02	8.1e+03
3	2,3,4,7,8-PeCDF	9.01e+06	3.88e+02	2.3e+04	5.76e+06	7.08e+02	8.1e+03
4	1,2,3,4,7,8-HxCDF	8.67e+06	4.92e+02	1.8e+04	6.98e+06	3.32e+02	2.1e+04
5	1,2,3,6,7,8-HxCDF	9.12e+06	4.92e+02	1.9e+04	7.24e+06	3.32e+02	2.2e+04
6	2,3,4,6,7,8-HxCDF	8.44e+06	4.92e+02	1.7e+04	6.64e+06	3.32e+02	2.0e+04
7	1,2,3,7,8,9-HxCDF	6.85e+06	4.92e+02	1.4e+04	5.34e+06	3.32e+02	1.6e+04
8	1,2,3,4,6,7,8-HpCDF	6.33e+06	1.73e+03	3.7e+03	5.90e+06	1.15e+03	5.1e+03
9	1,2,3,4,7,8,9-HpCDF	4.87e+06	1.73e+03	2.8e+03	4.55e+06	1.15e+03	4.0e+03
10	OCDF	5.91e+06	8.00e+01	7.4e+04	6.25e+06	5.00e+02	1.2e+04
11	2,3,7,8-TCDD	8.16e+05	3.36e+02	2.4e+03	1.05e+06	1.20e+02	8.7e+03
12	1,2,3,7,8-PeCDD	6.02e+06	3.44e+02	1.8e+04	3.83e+06	9.60e+01	4.0e+04
13	1,2,3,4,7,8-HxCDD	5.84e+06	2.00e+02	2.9e+04	4.62e+06	2.16e+02	2.1e+04
14	1,2,3,6,7,8-HxCDD	5.19e+06	2.00e+02	2.6e+04	4.21e+06	2.16e+02	2.0e+04
15	1,2,3,7,8,9-HxCDD	5.67e+06	2.00e+02	2.8e+04	4.58e+06	2.16e+02	2.1e+04
16	1,2,3,4,6,7,8-HpCDD	3.97e+06	3.24e+02	1.2e+04	3.78e+06	3.28e+02	1.2e+04
17	OCDD	4.60e+06	1.00e+02	4.6e+04	5.24e+06	5.84e+02	9.0e+03
18	13C-2,3,7,8-TCDF	1.10e+07	9.60e+02	1.1e+04	1.41e+07	4.96e+02	2.8e+04
19	13C-1,2,3,7,8-PeCDF	1.70e+07	2.20e+02	7.7e+04	1.09e+07	1.80e+02	6.0e+04
20	13C-2,3,4,7,8-PeCDF	1.76e+07	2.20e+02	8.0e+04	1.12e+07	1.80e+02	6.2e+04
21	13C-1,2,3,4,7,8-HxCDF	8.03e+06	5.16e+02	1.6e+04	1.55e+07	3.76e+02	4.1e+04
22	13C-1,2,3,6,7,8-HxCDF	8.88e+06	5.16e+02	1.7e+04	1.69e+07	3.76e+02	4.5e+04
23	13C-2,3,4,6,7,8-HxCDF	8.16e+06	5.16e+02	1.6e+04	1.57e+07	3.76e+02	4.2e+04
24	13C-1,2,3,7,8,9-HxCDF	6.55e+06	5.16e+02	1.3e+04	1.26e+07	3.76e+02	3.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.00e+06	2.08e+03	2.4e+03	1.10e+07	3.47e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.06e+06	2.08e+03	2.0e+03	9.03e+06	3.47e+03	2.6e+03
27	13C-2,3,7,8-TCDD	8.35e+06	2.38e+03	3.5e+03	1.06e+07	8.60e+02	1.2e+04
28	13C-1,2,3,7,8-PeCDD	1.27e+07	3.16e+02	4.0e+04	8.22e+06	6.40e+01	1.3e+05
29	13C-1,2,3,4,7,8-HxCDD	1.12e+07	9.80e+02	1.1e+04	8.84e+06	4.36e+02	2.0e+04
30	13C-1,2,3,6,7,8-HxCDD	1.04e+07	9.80e+02	1.1e+04	8.13e+06	4.36e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.59e+06	5.76e+02	1.3e+04	7.17e+06	9.20e+01	7.8e+04
32	13C-OCDD	8.38e+06	8.40e+01	1.0e+05	9.23e+06	2.36e+02	3.9e+04
33	13C-1,2,3,4-TCDD	8.54e+06	2.38e+03	3.6e+03	1.08e+07	8.60e+02	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	1.15e+07	9.80e+02	1.2e+04	9.18e+06	4.36e+02	2.1e+04
35	37Cl-2,3,7,8-TCDD	2.00e+06	6.08e+02	3.3e+03			

ALS ENVIRONMENTAL
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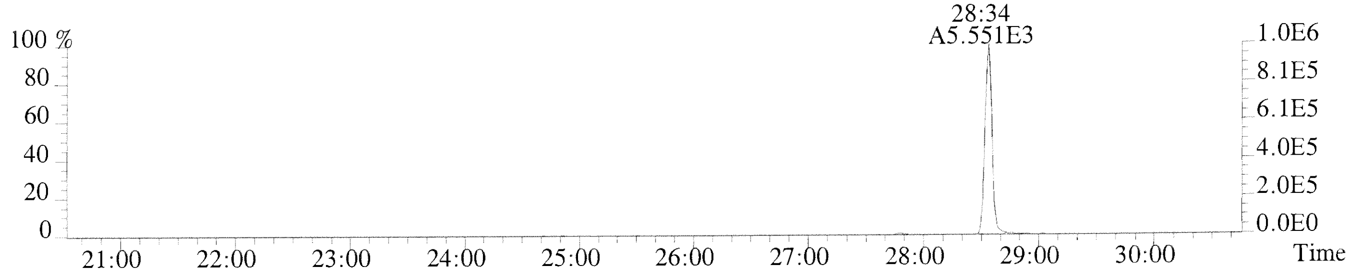
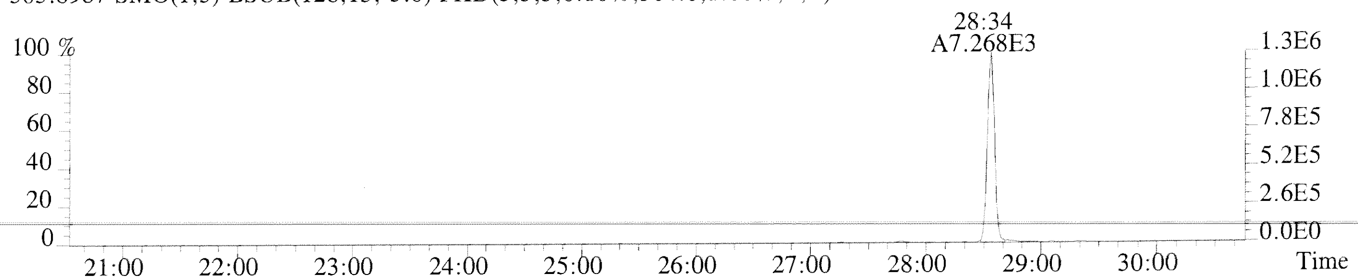
File:P174036 #1-788 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

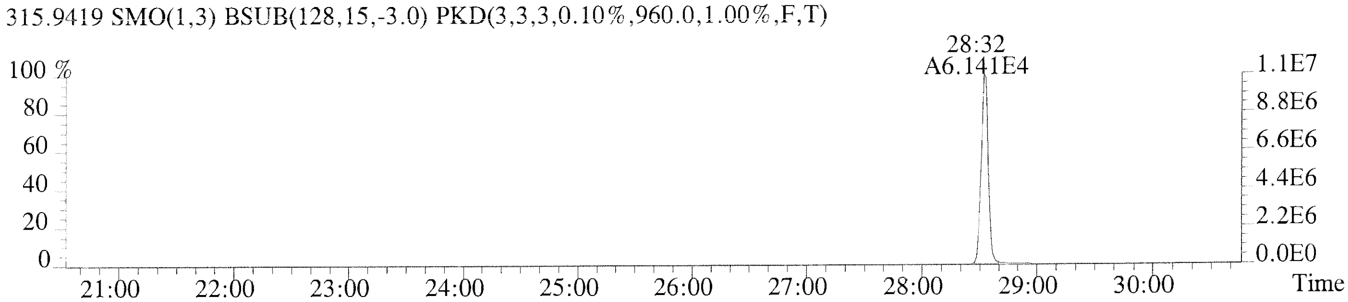
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,112.0,1.00%,F,T)



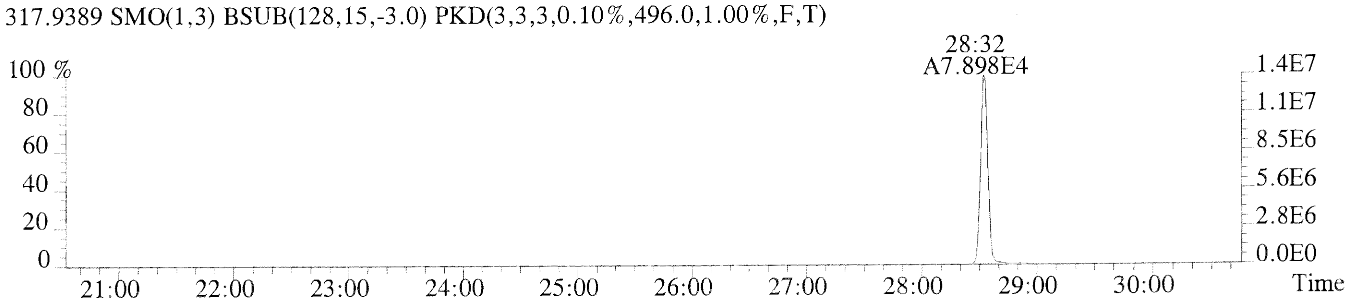
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



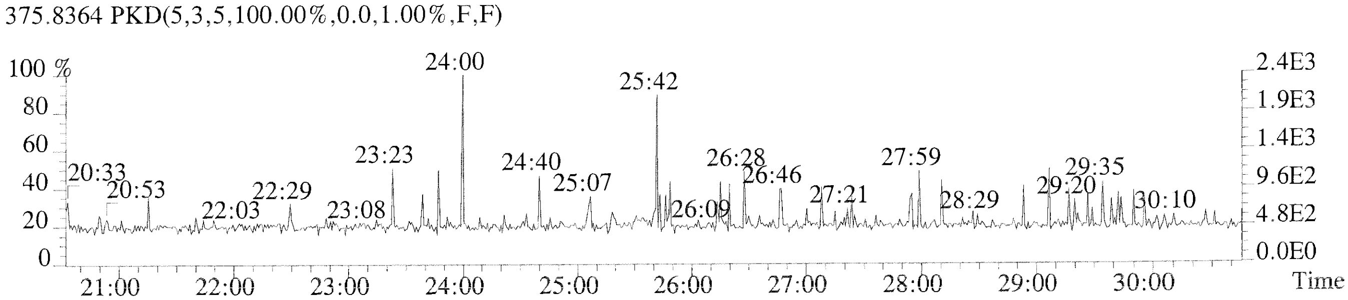
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



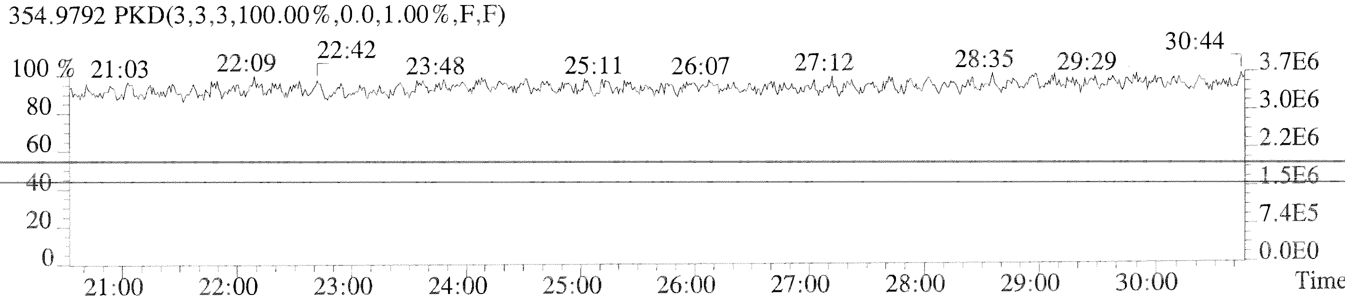
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

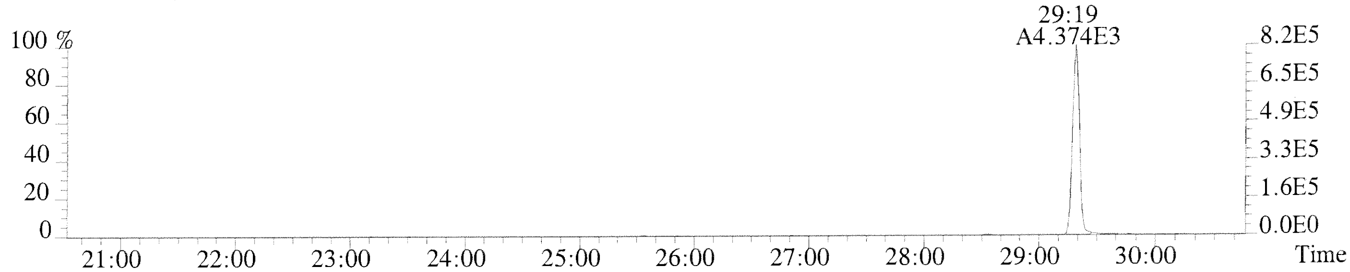


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

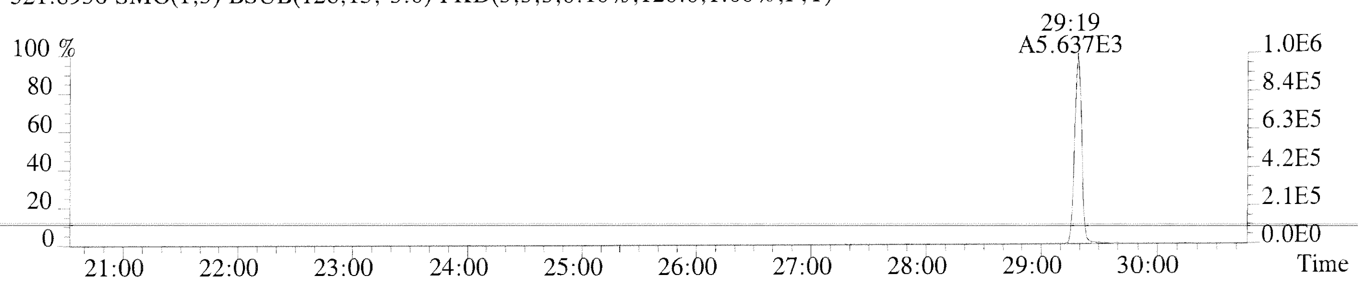


File:P174036 #1-788 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

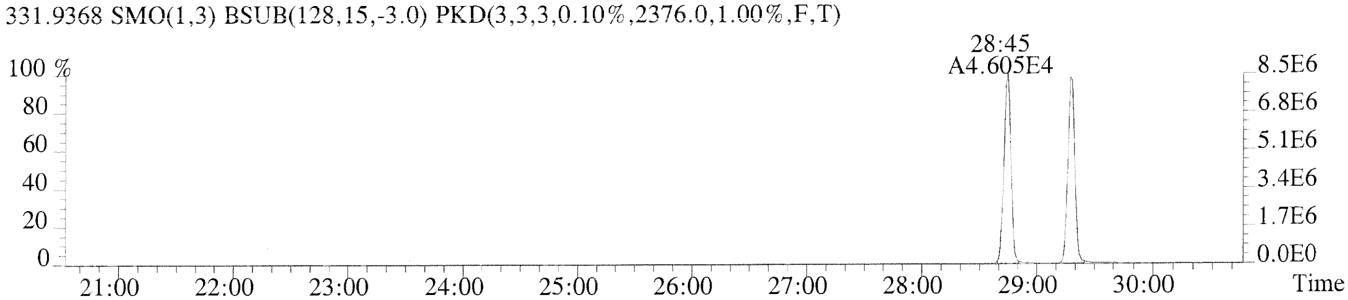
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



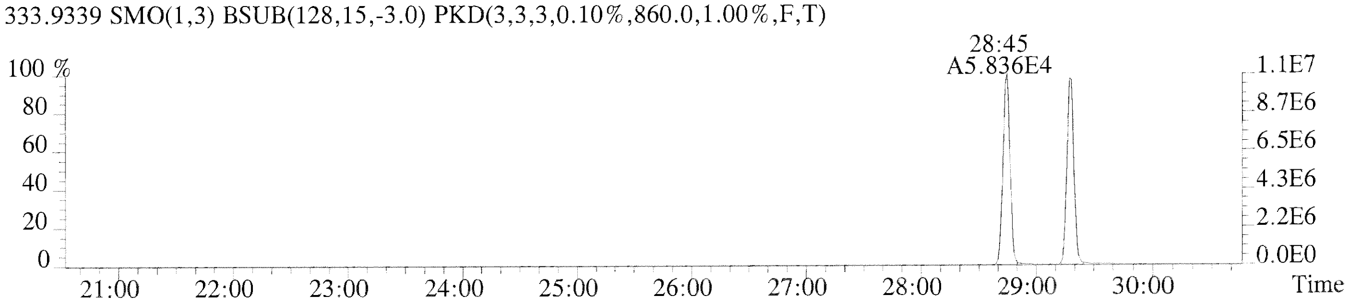
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



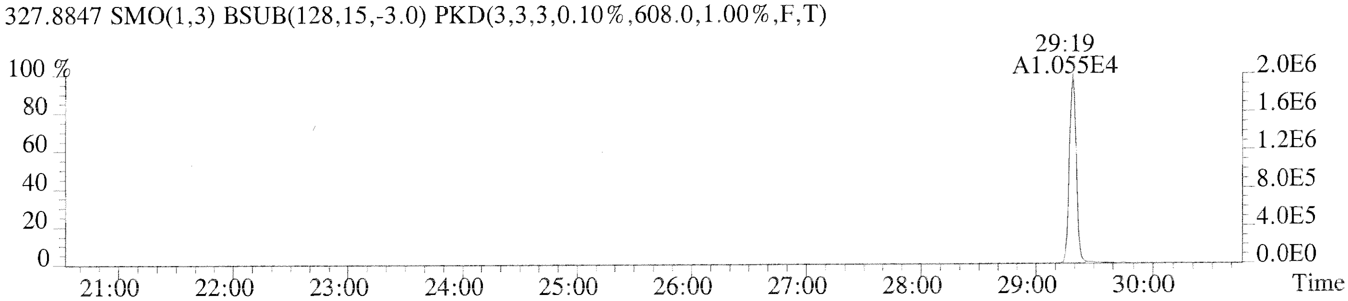
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2376.0,1.00%,F,T)



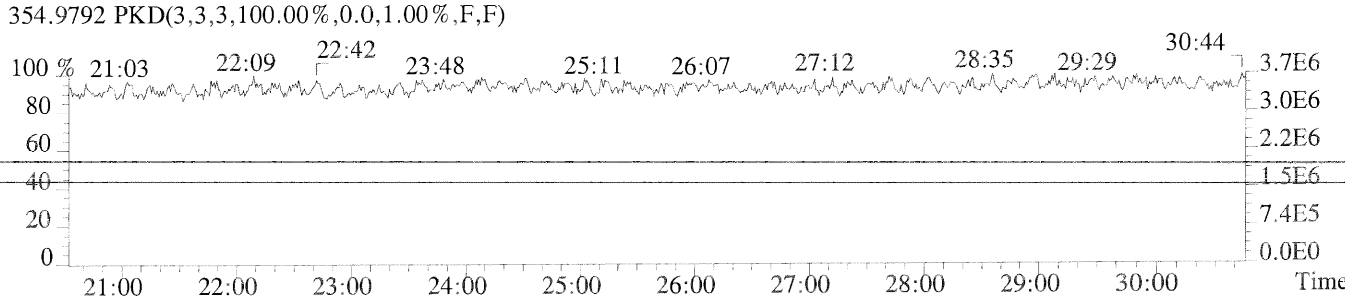
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



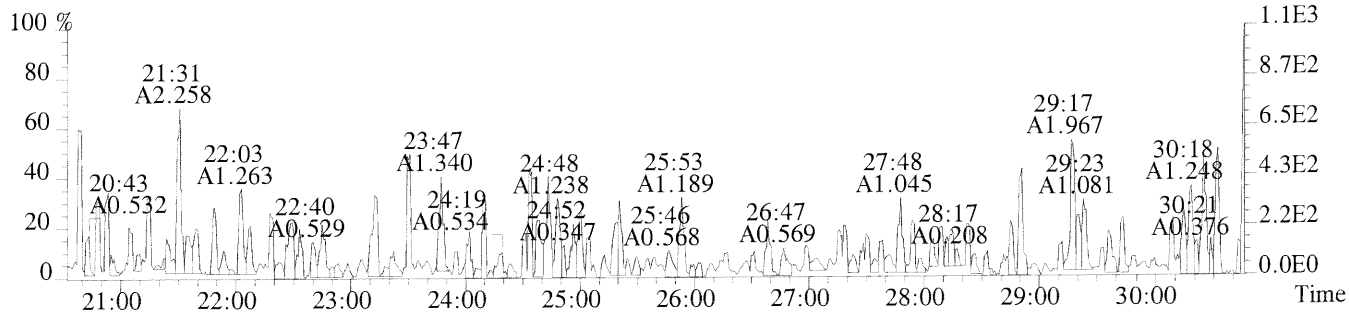
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



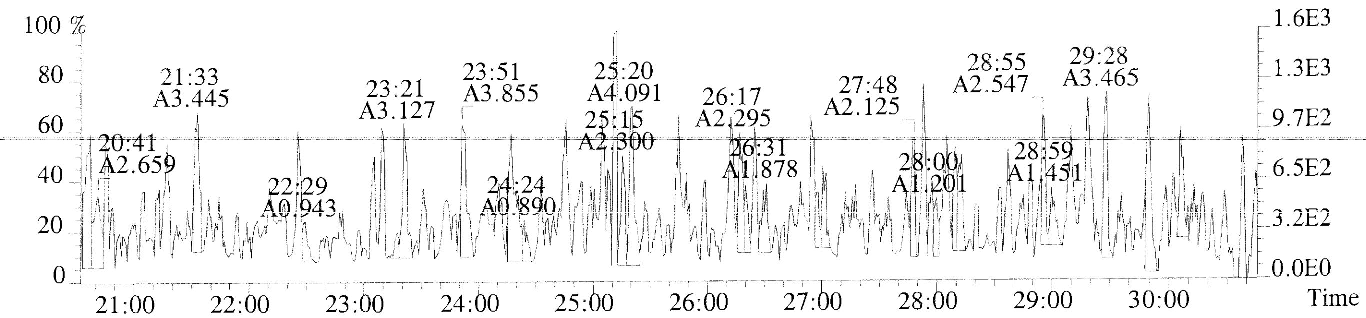
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



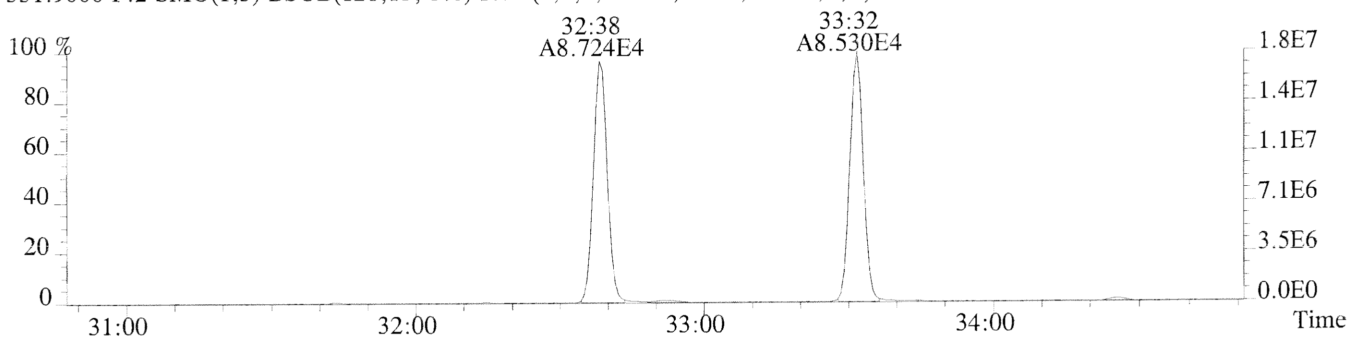
File:P174036 #1-788 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



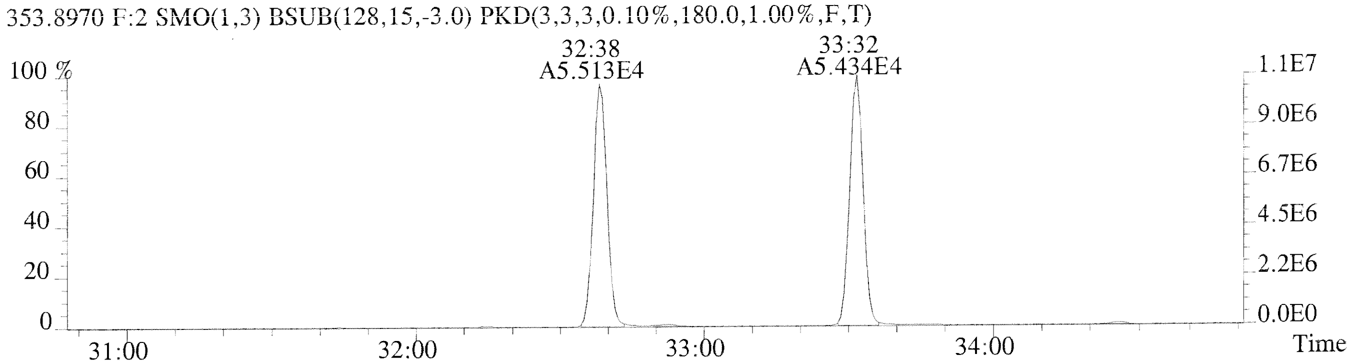
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



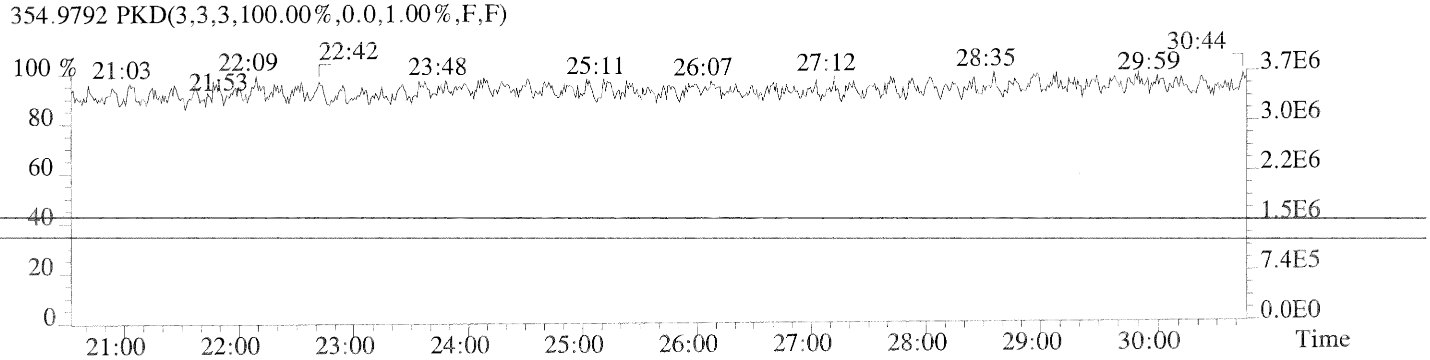
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)

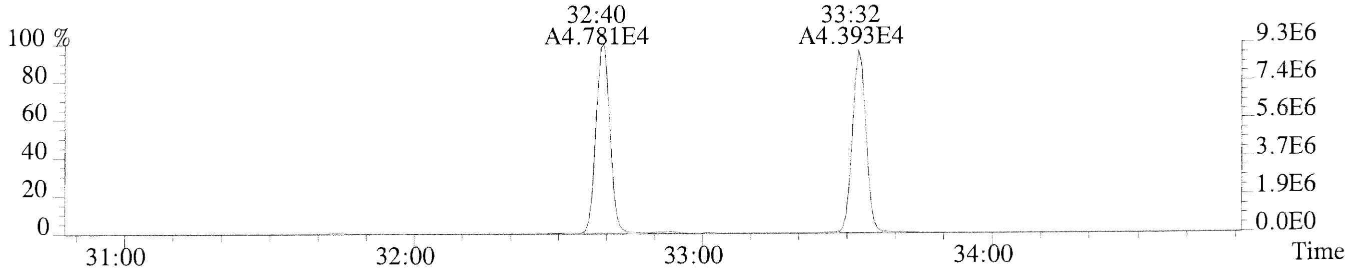


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

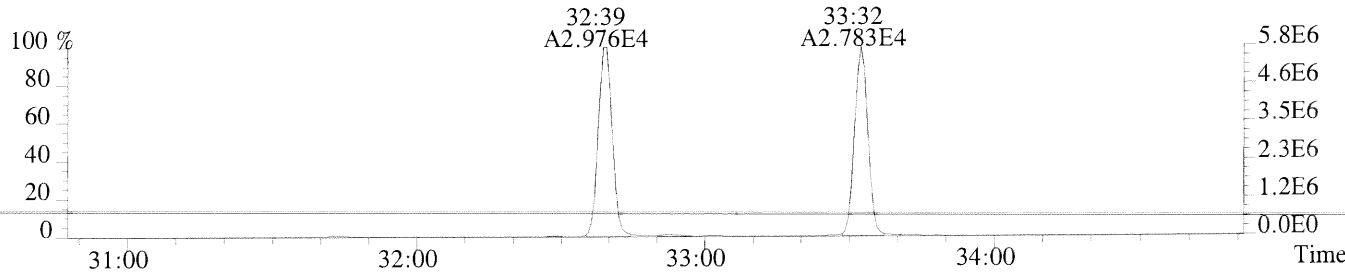


File:P174036 #1-369 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

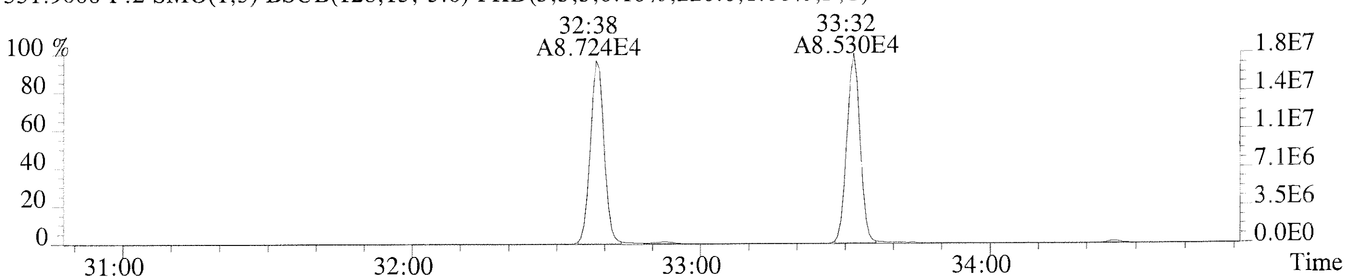
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



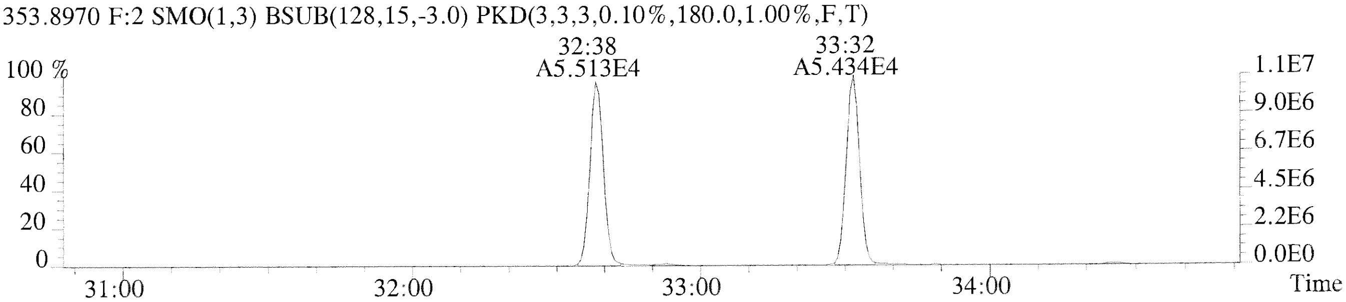
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



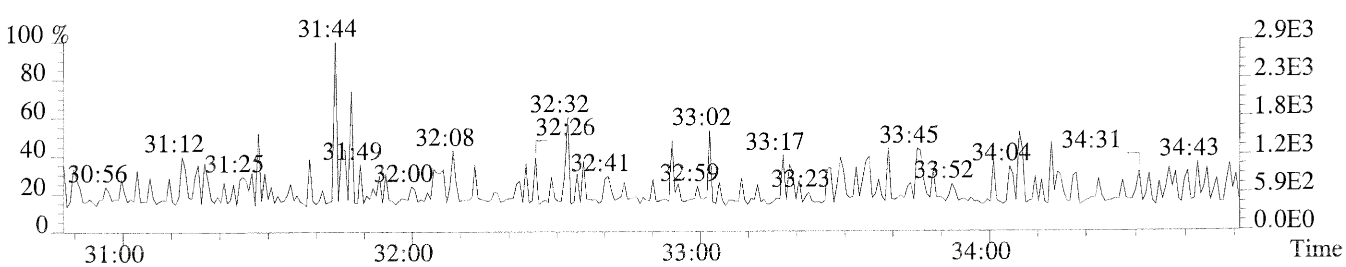
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



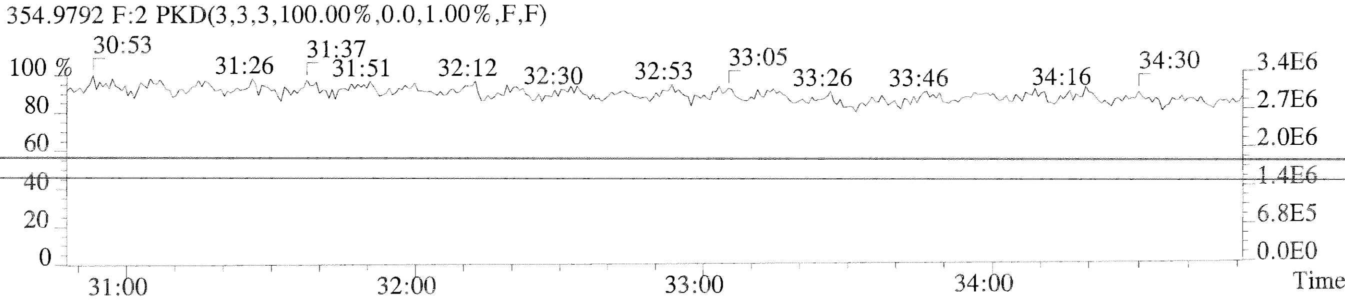
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



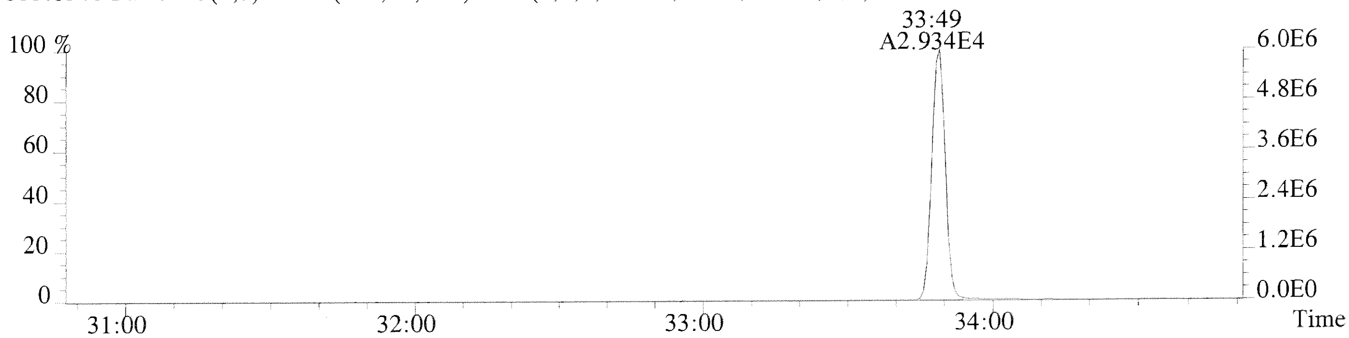
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



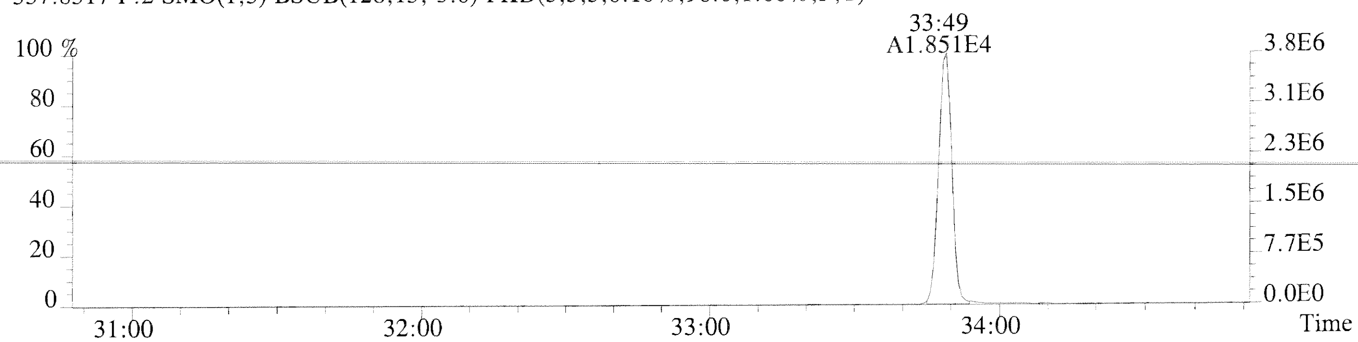
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



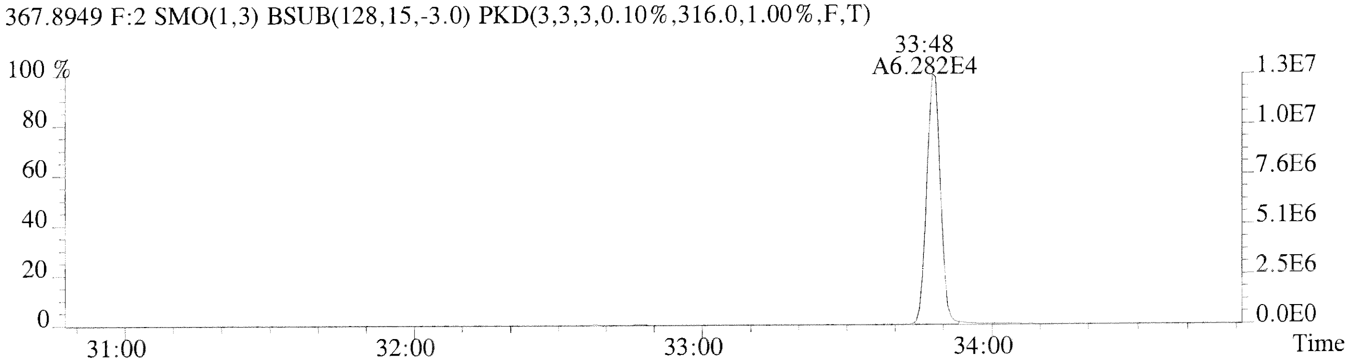
File:P174036 #1-369 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



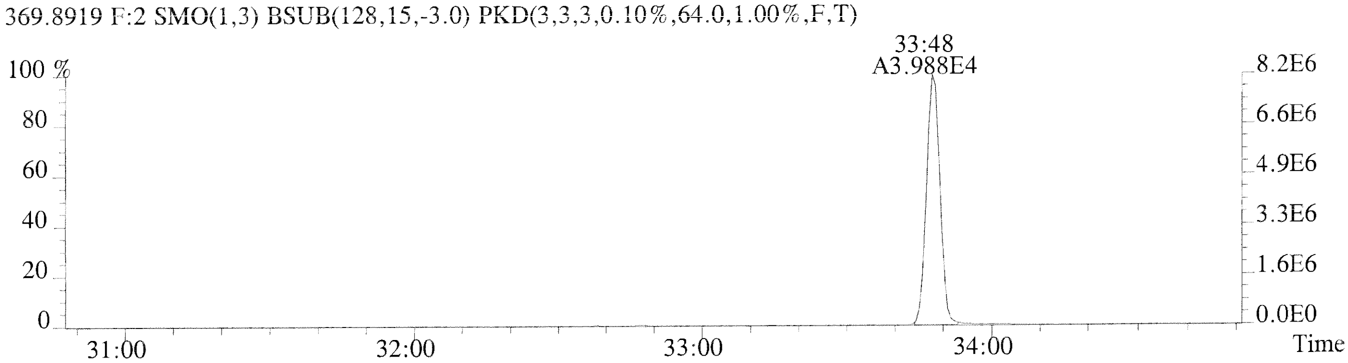
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



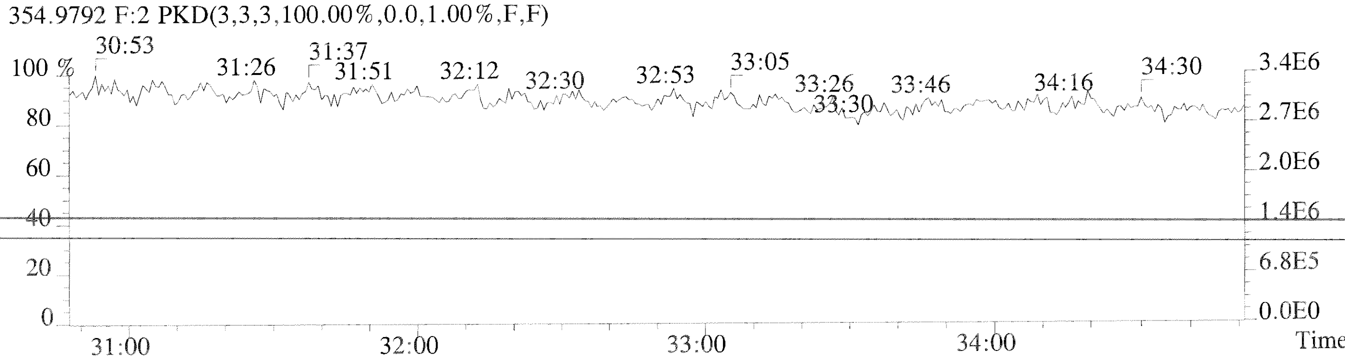
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



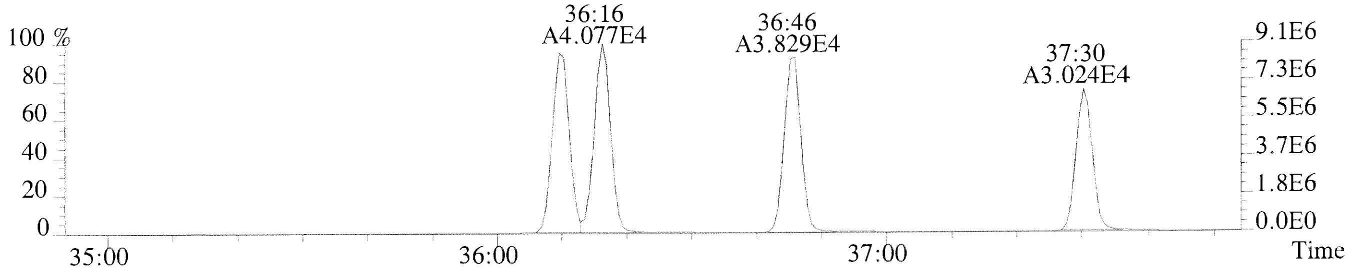
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



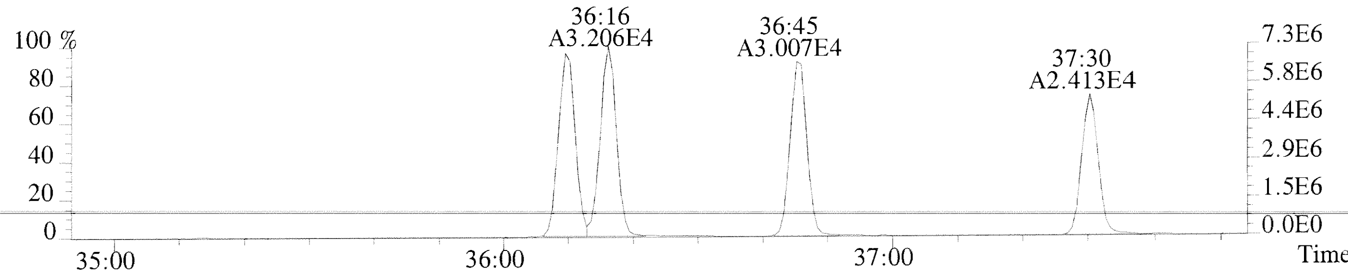
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



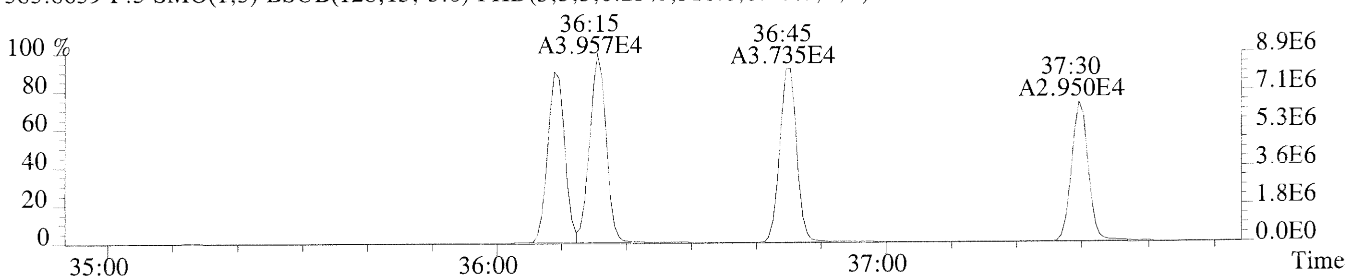
File:P174036 #1-274 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



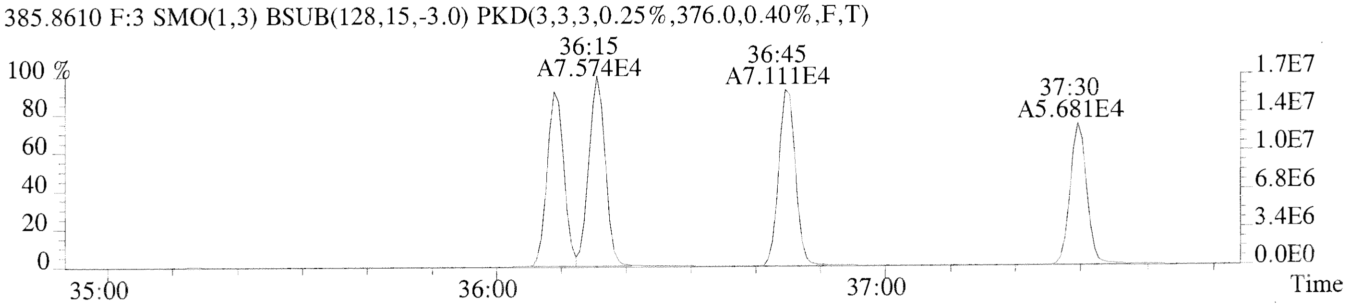
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



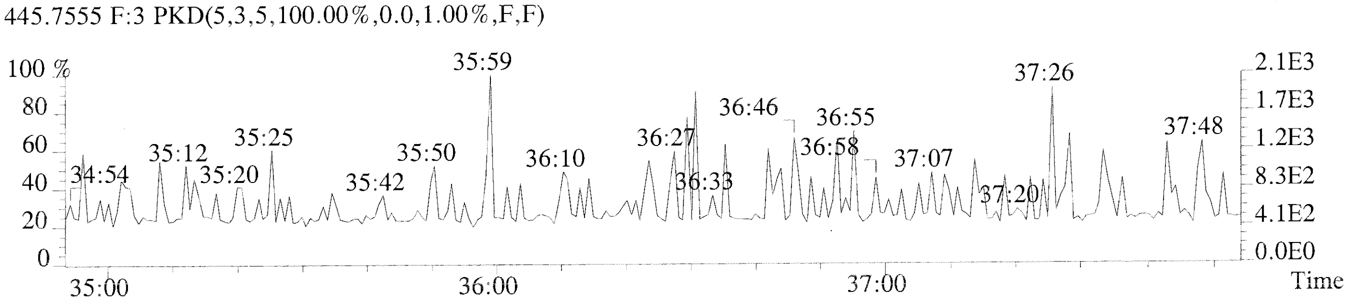
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



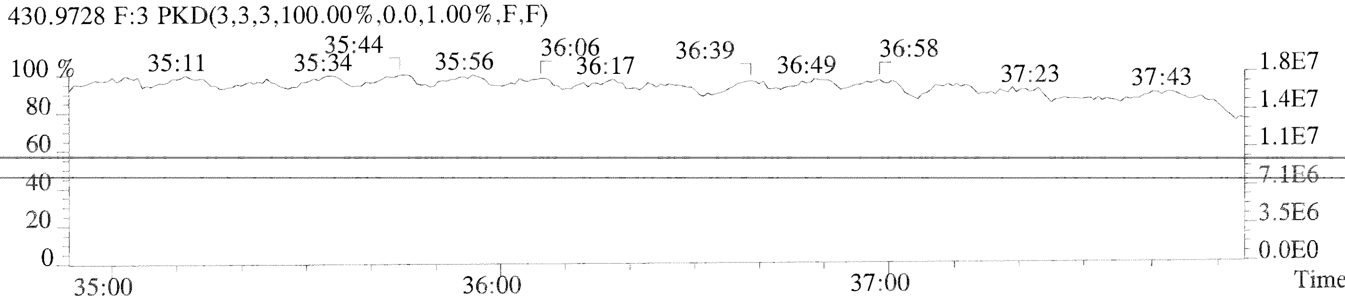
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

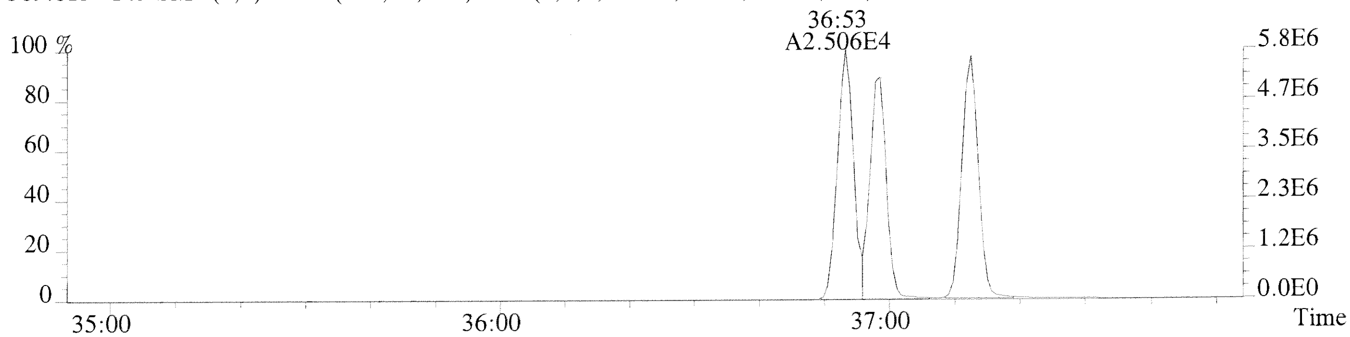


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

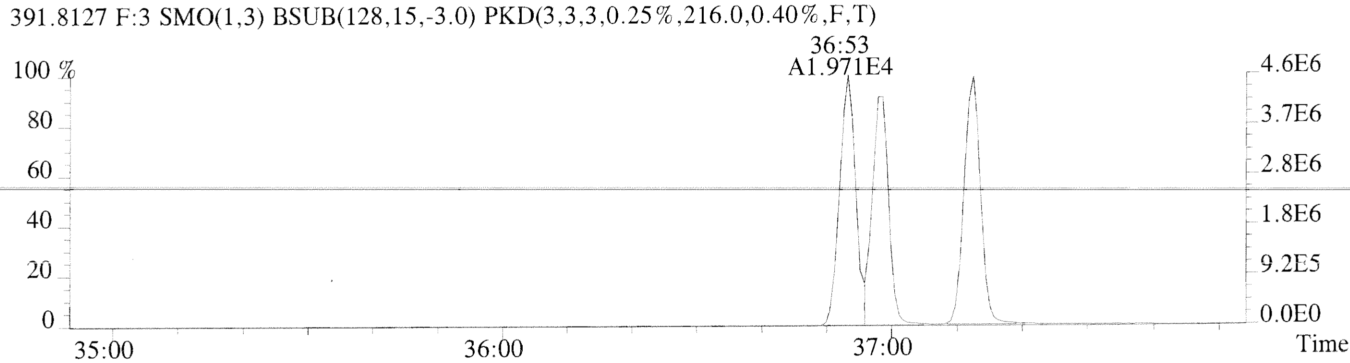


File:P174036 #1-274 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

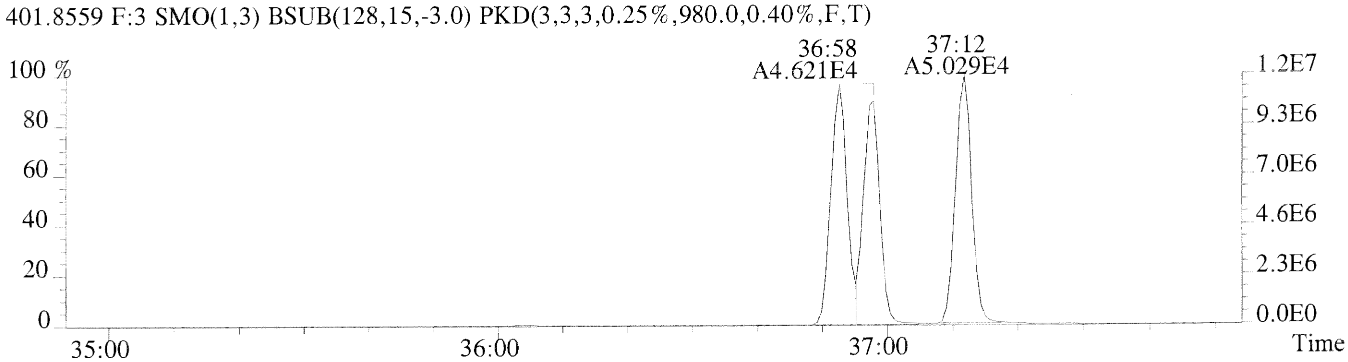
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



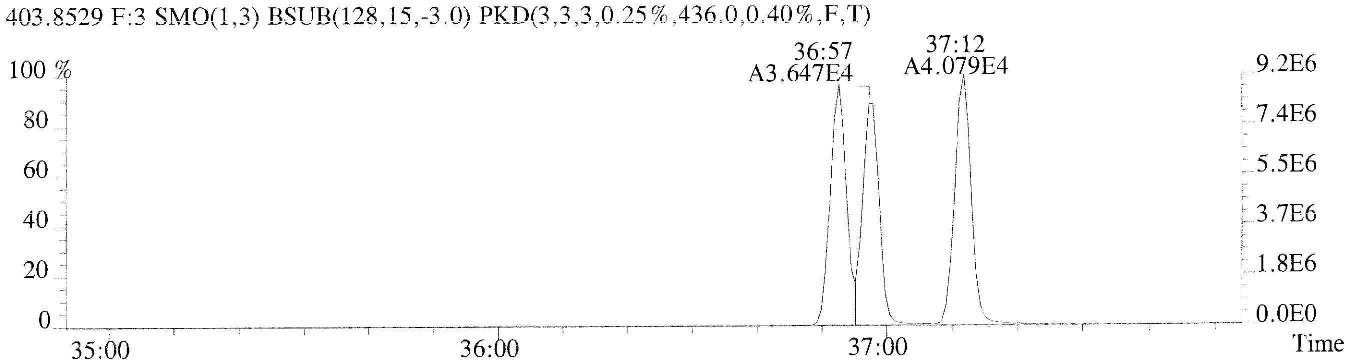
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



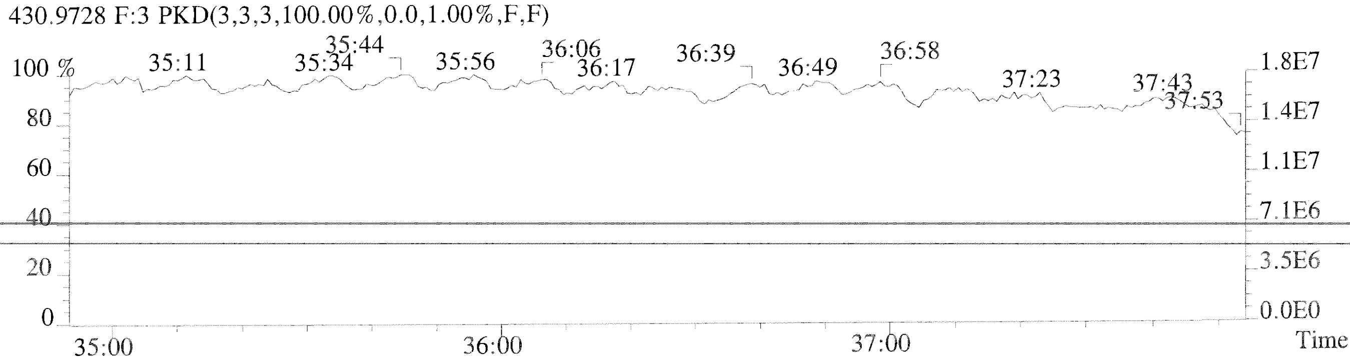
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



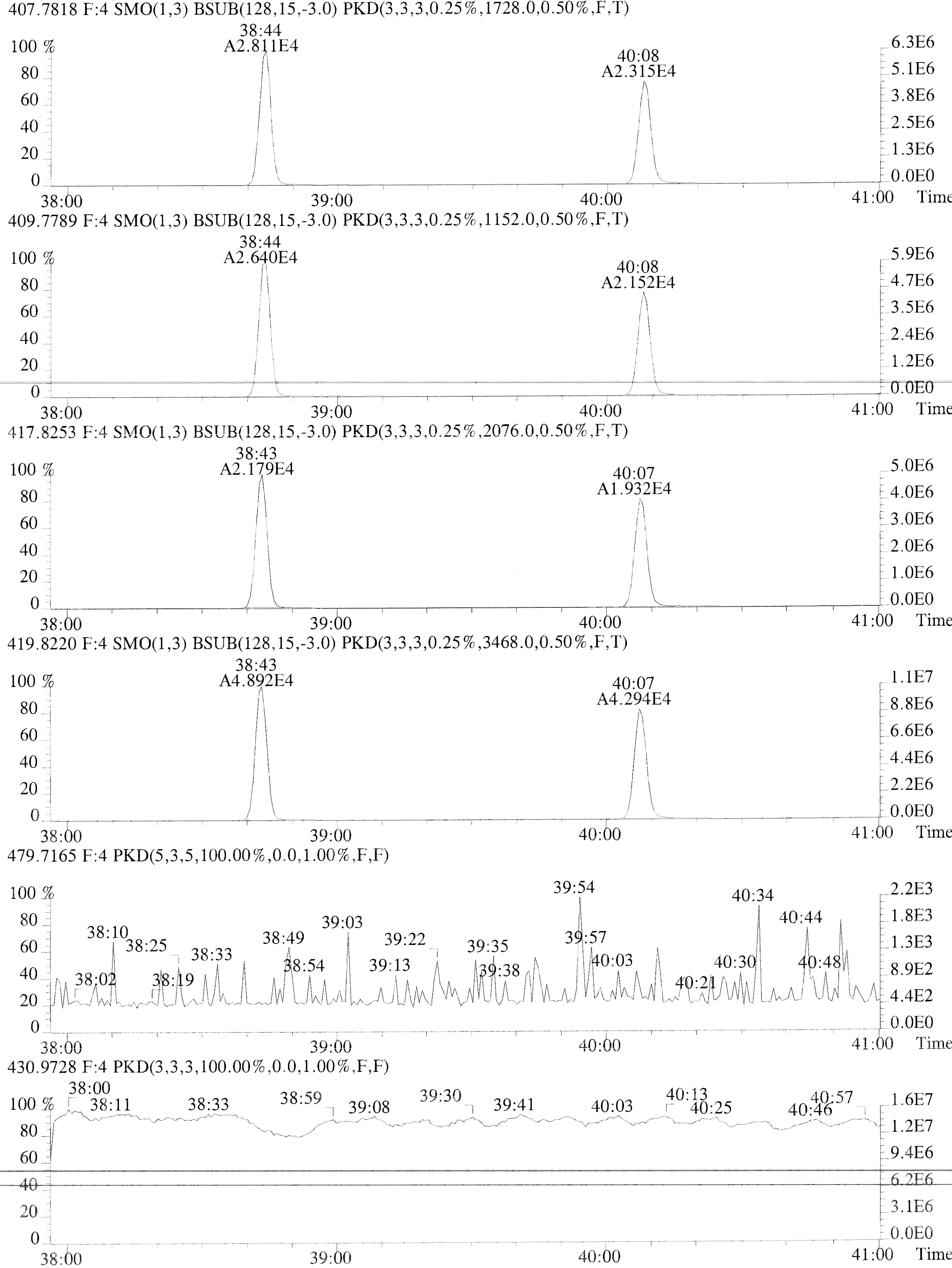
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



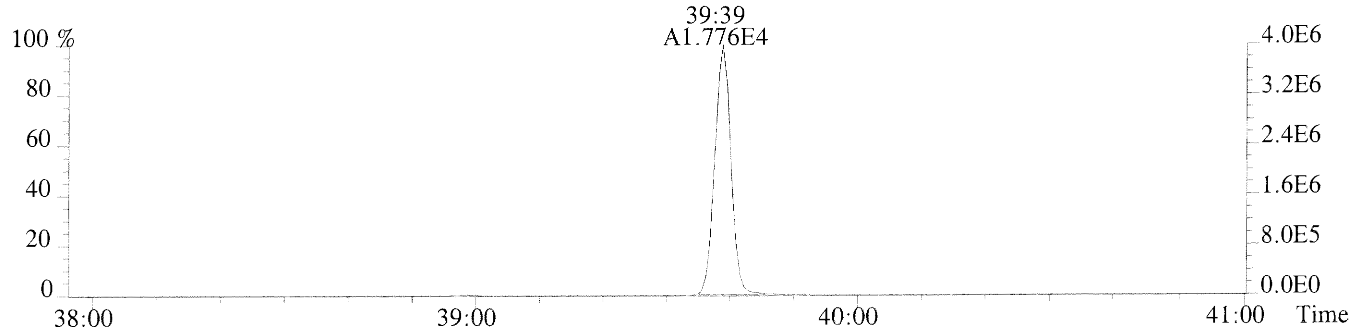
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



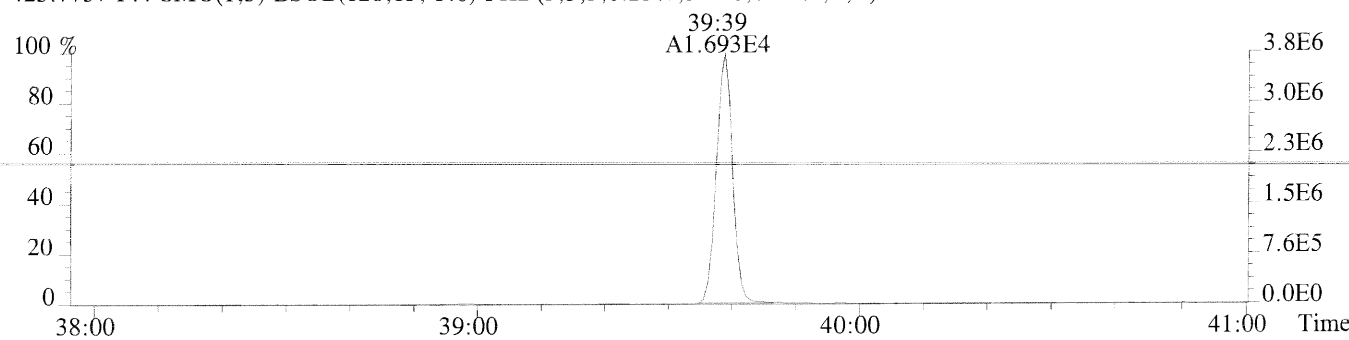
File:P174036 #1-279 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



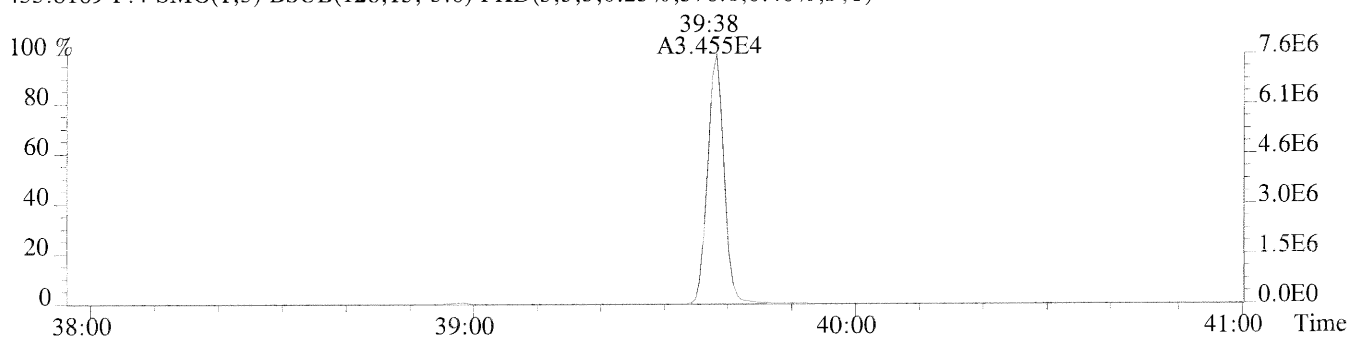
File:P174036 #1-279 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



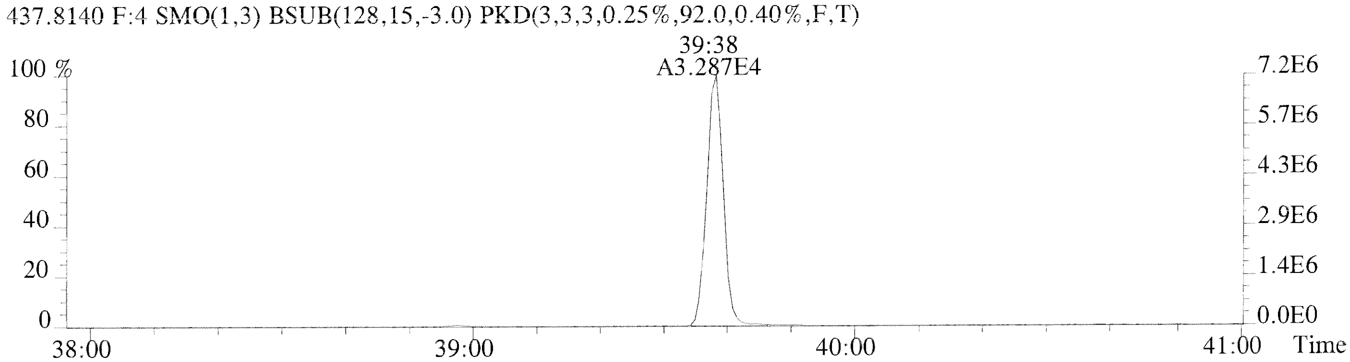
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



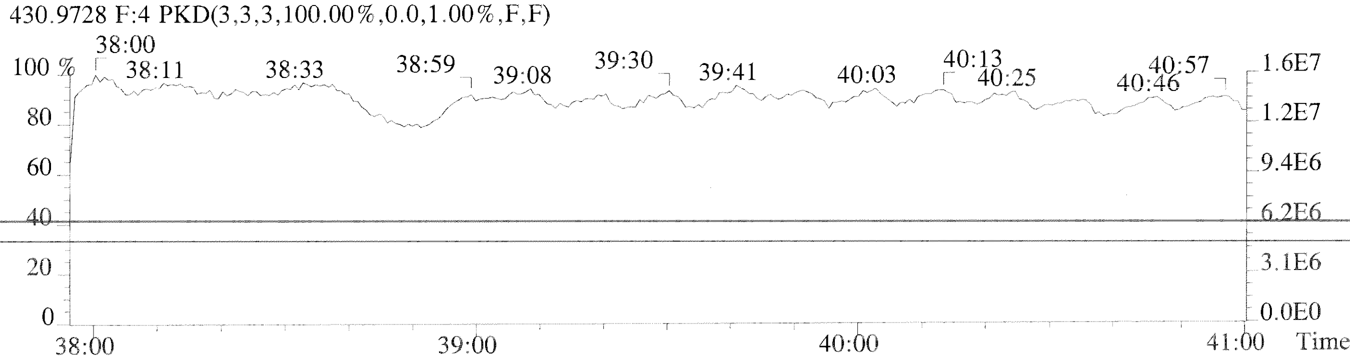
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,92.0,0.40%,F,T)

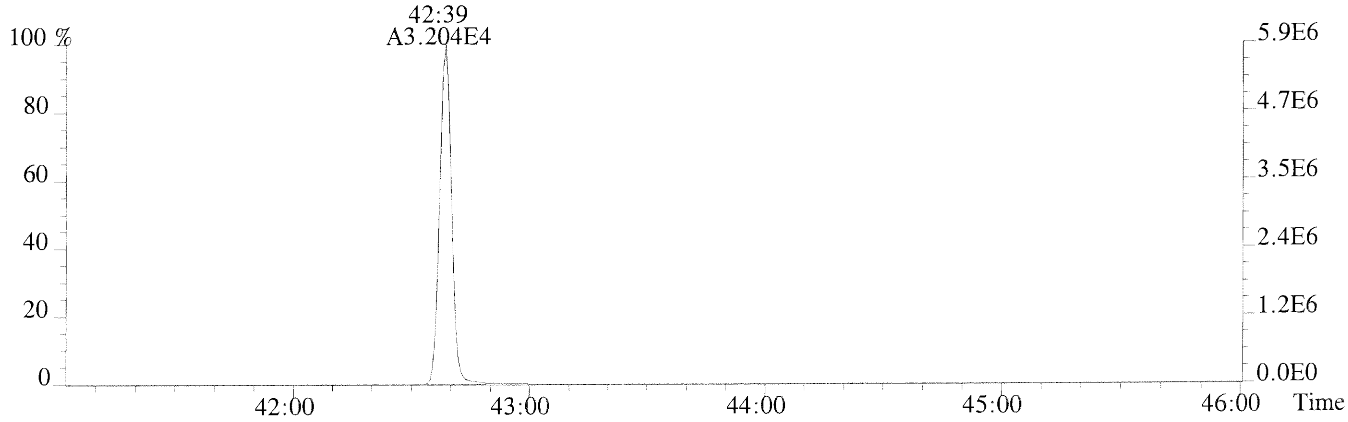


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

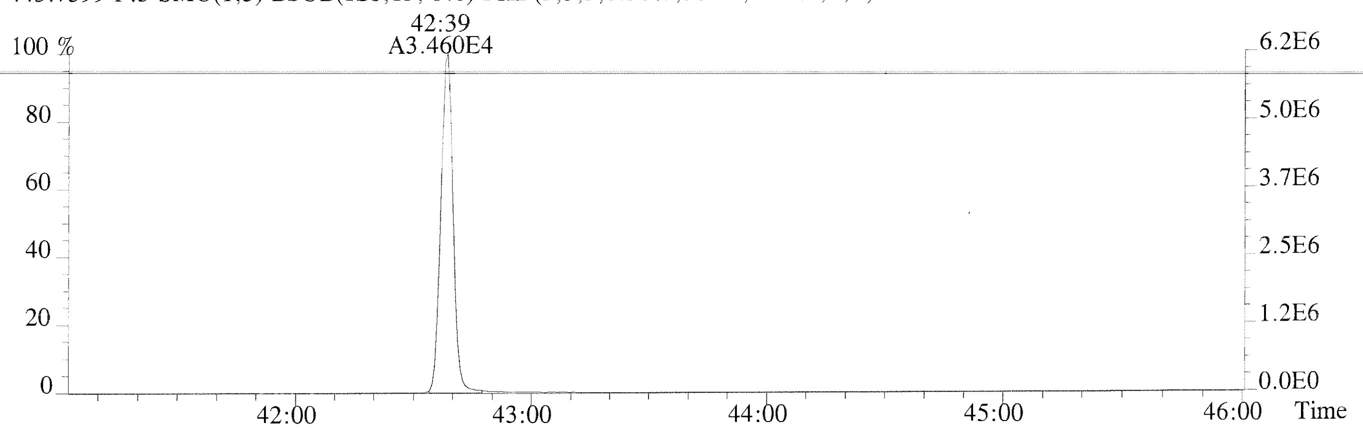


File:P174036 #1-457 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

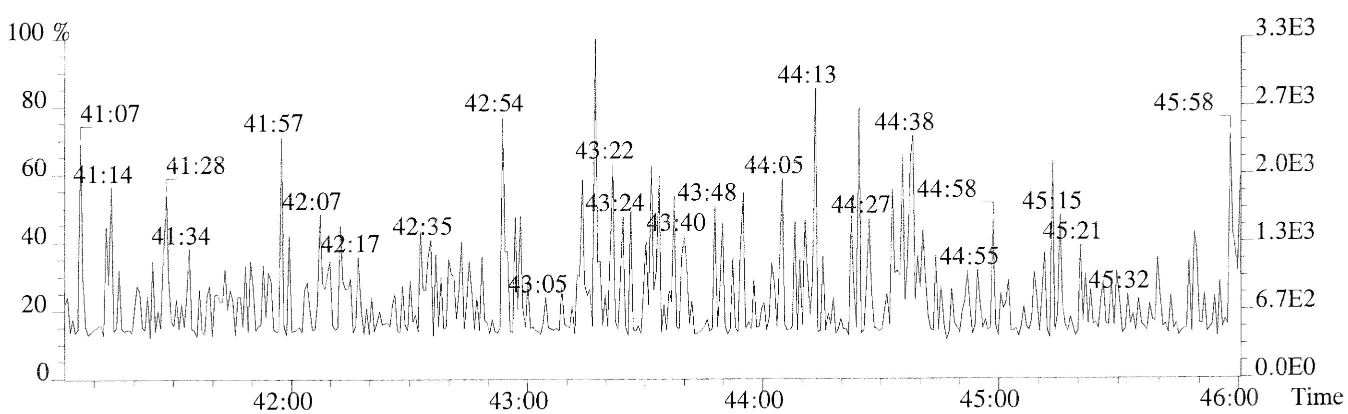
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,80.0,0.40%,F,T)



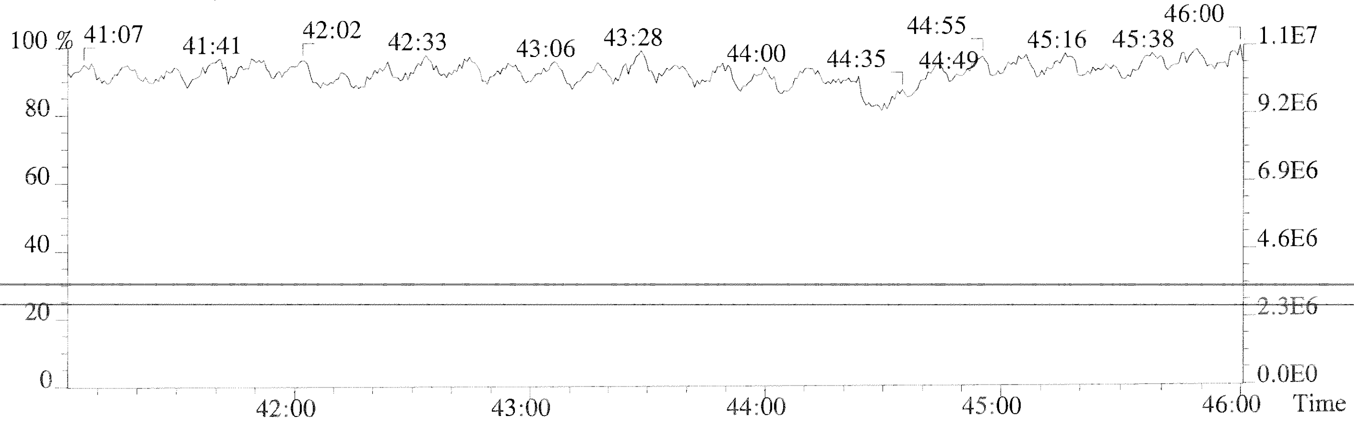
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

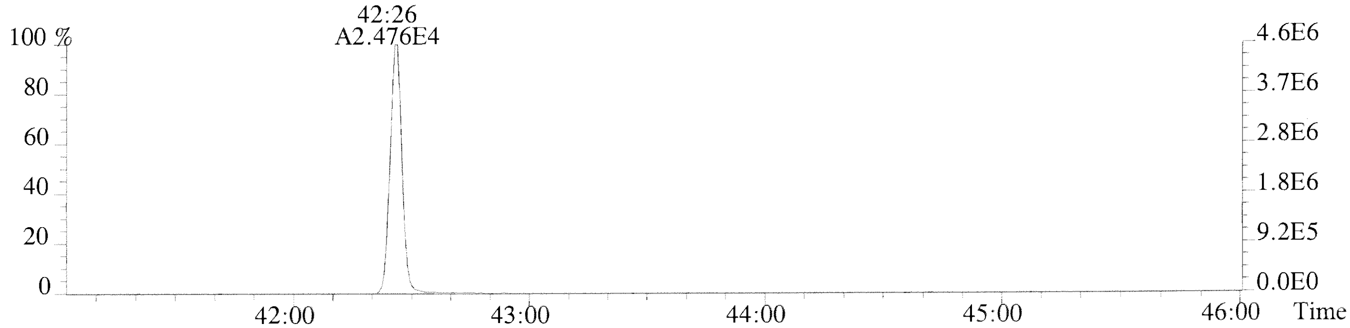


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

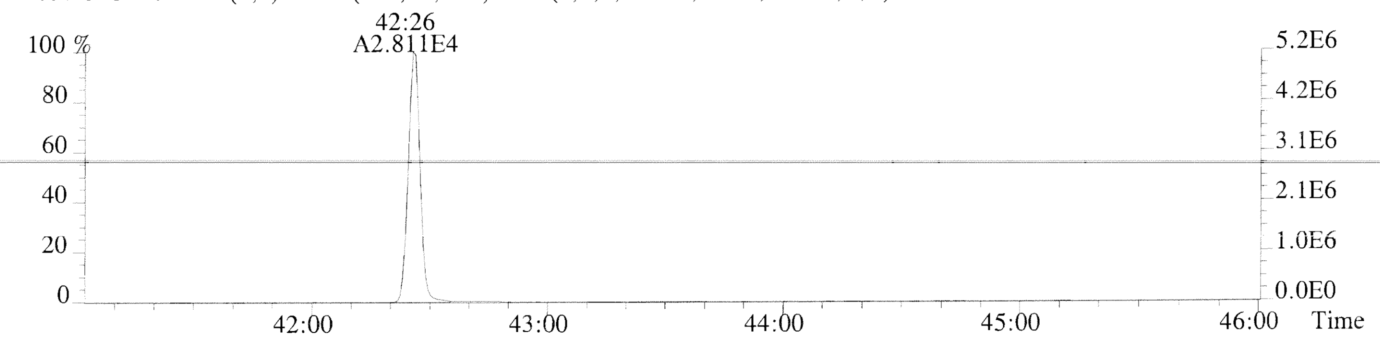


File:P174036 #1-457 Acq:11-OCT-2014 11:57:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

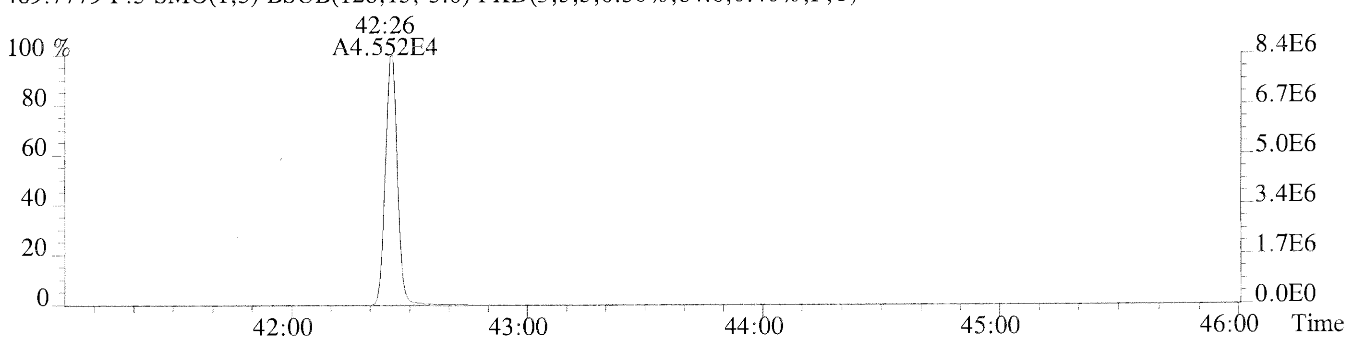
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,100.0,0.40%,F,T)



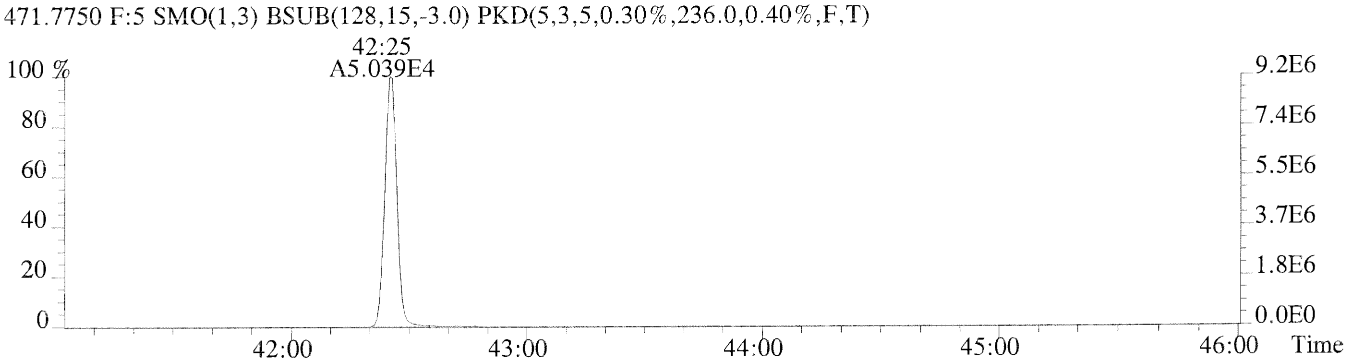
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



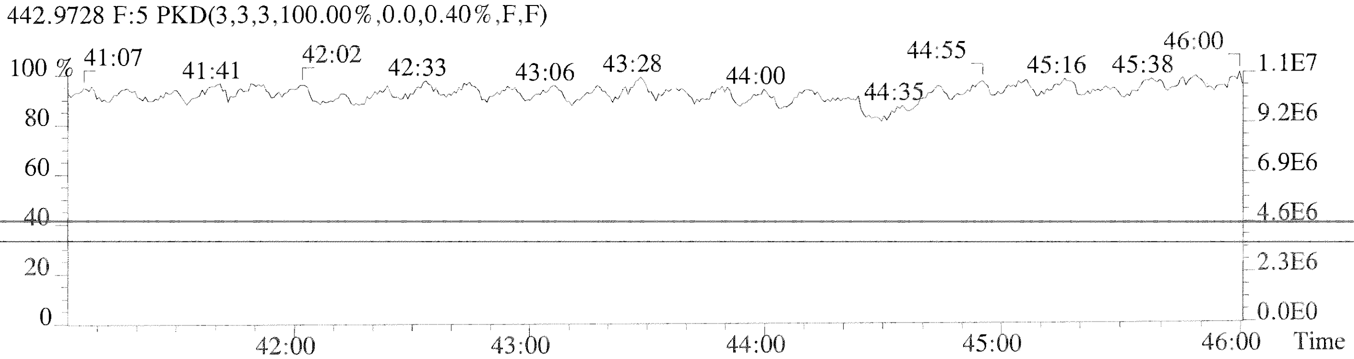
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,84.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P231750-P231761 Circle one: Beginning / Ending

Date: 10/03/14-10/04/14

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check: Analyst Second Check

Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration Analyst Second Check

Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: gc Second QC: [signature]

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 08/24/14

Init. Calib.Times: 09:48:48

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P231751	3-OCT-14	23:26:58
72675	CS3	P231750	3-OCT-14	22:39:07
DO NOT USE	EQ1400606-01 *	P231752	4-OCT-14	00:14:49
REEL#:14-030905011	E1401150-001	P231753	4-OCT-14	01:02:41
SBA-ESI-14	E1401160-001	P231754	4-OCT-14	01:50:26
COMP-WMXU0085809	E1401161-001	P231755	4-OCT-14	02:38:16
COMP-WMXU0085497	E1401161-002	P231756	4-OCT-14	03:26:06
9042O	J1407324-001	P231757	4-OCT-14	04:13:53
9043O	J1407324-002	P231758	4-OCT-14	05:01:38
9044O	J1407324-003	P231759	4-OCT-14	05:49:23
TEST	TEST	P231760	4-OCT-14	06:37:13
72675	CS3	P231761	4-OCT-14	07:25:04

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2141003B.SPL

Last Modified: Saturday, October 04, 2014 13:11:02 Central Daylight Time

Printed: Saturday, October 04, 2014 13:11:15 Central Daylight Time

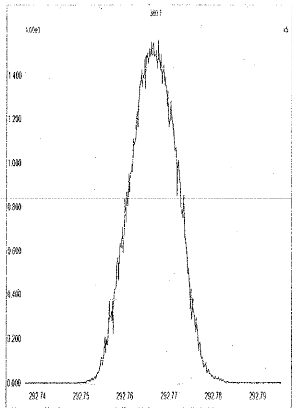
e: P231750res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/03/14	22:39	P231750	CS3	72675	LL	HRMS check 10:36	8290CAS
2		23:26	P231751	WINDOW DEFINE	63680			8290CAS
3	10/04/14	00:14	P231752	EQ1400606-01	MB			8290CAS
4		01:02	P231753	E1401150-001	E1401150-001			8290CAS
5		01:50	P231754	E1401160-001	E1401160-001			8290CAS
6		02:38	P231755	E1401161-001	E1401161-001			8290CAS
7		03:26	P231756	E1401161-002	E1401161-002			8290CAS
8		04:13	P231757	J1407324-001	J1407324-001			8290CAS
9		05:01	P231758	J1407324-002	J1407324-002			8290CAS
10		05:49	P231759	J1407324-003	J1407324-003			8290CAS
11		06:37	P231760	TEST	TEST			8290CAS
12		07:25	P231761	CS3	72675		HRMS check 08:20	8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27	---	---	---	---	---	---	---	8290CAS
28	---	---	---	---	REVIEWED BY: gc 10/07/14	---	---	8290CAS
29	---	---	---	---	---	---	---	8290CAS
30	---	---	---	---	---	---	---	8290CAS
31	---	---	---	---	---	---	---	TCDFCAS
32	---	---	---	---	---	---	---	TCDFCAS
33	---	---	---	---	---	---	---	TCDFCAS
34	---	---	---	---	---	---	---	---
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	8290CAS
37	---	---	---	---	---	---	---	8290CAS
38	---	---	---	---	---	---	---	TCDFCAS

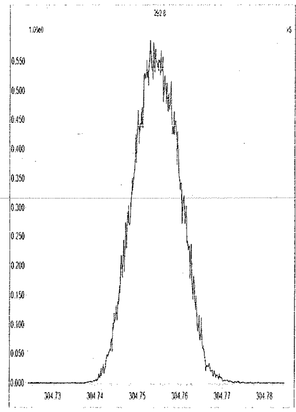
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, October 03, 2014 10:36:39 Central Daylight Time

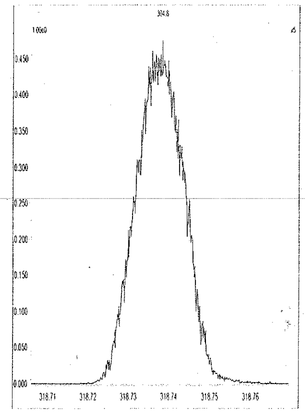
M 292.9824 R 12504



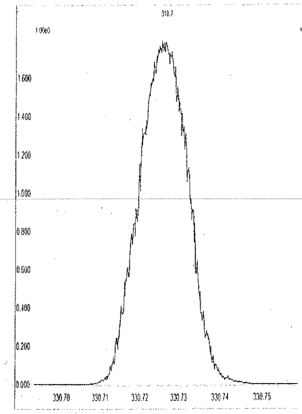
M 304.9824 R 12822



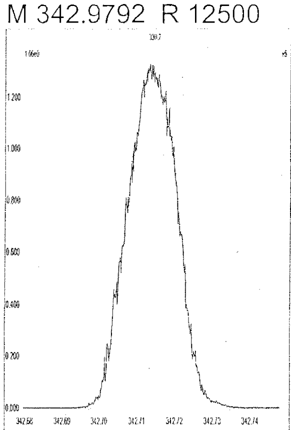
M 318.9792 R 12754



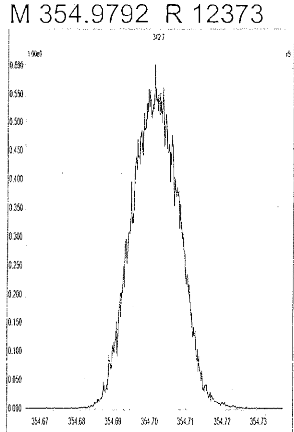
M 330.9792 R 12889



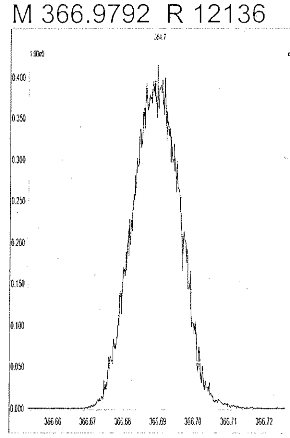
M 342.9792 R 12500



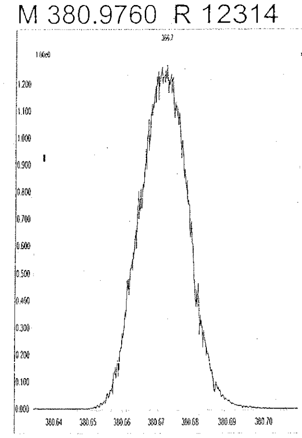
M 354.9792 R 12373



M 366.9792 R 12136



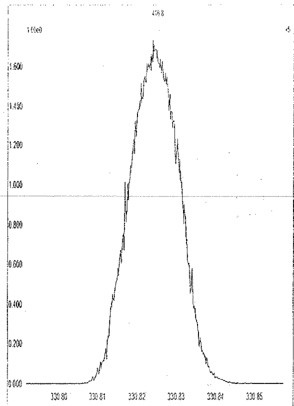
M 380.9760 R 12314



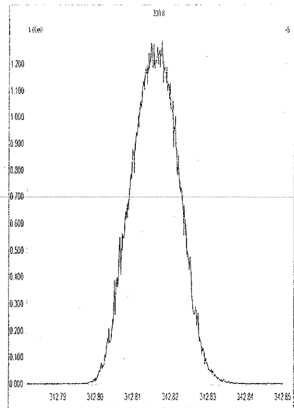
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, October 03, 2014 10:37:40 Central Daylight Time

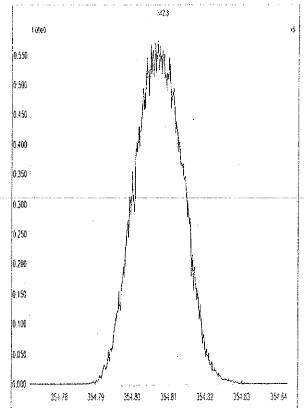
M 330.9792 R 12136



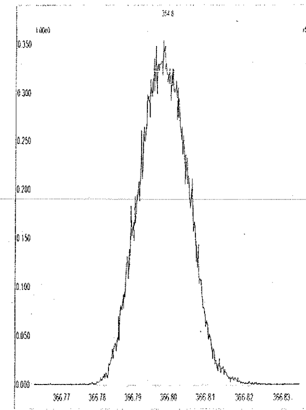
M 342.9792 R 12139



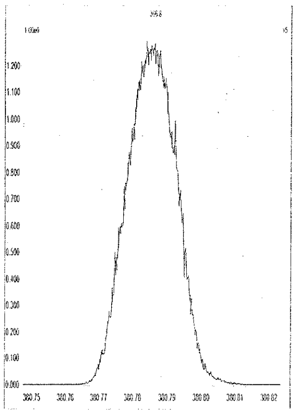
M 354.9792 R 12316



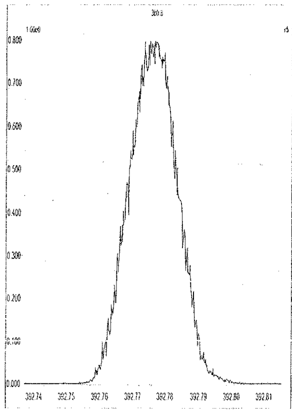
M 366.9792 R 12375



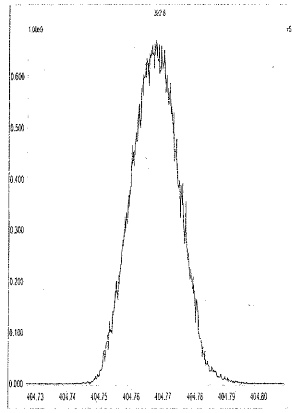
M 380.9760 R 12502



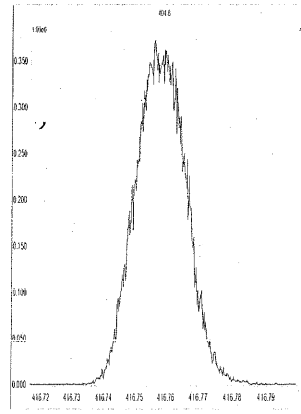
M 392.9760 R 12195



M 404.9760 R 12017



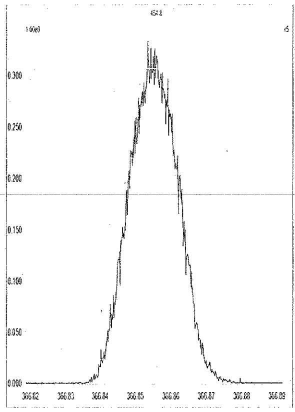
M 416.9760 R 11849



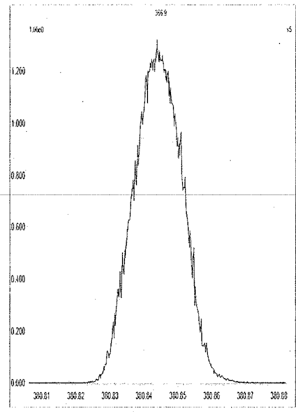
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, October 03, 2014 10:38:53 Central Daylight Time

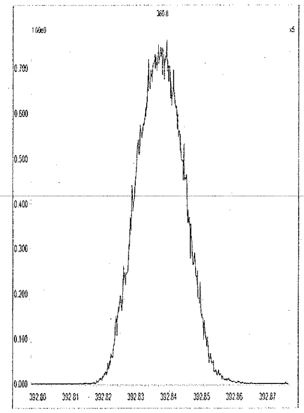
M 366.9792 R 11905



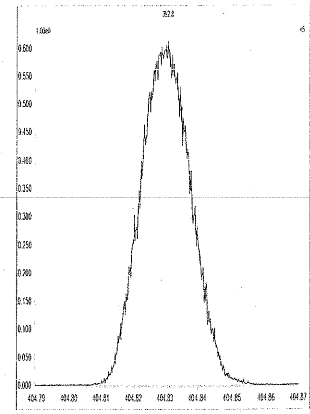
M 380.9760 R 12135



M 392.9760 R 12317



M 404.9760 R 12077



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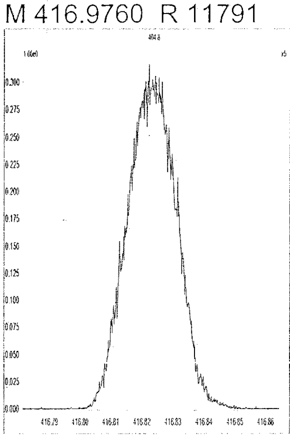

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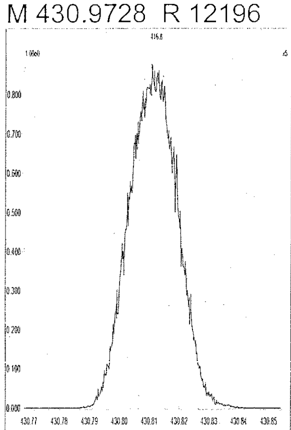

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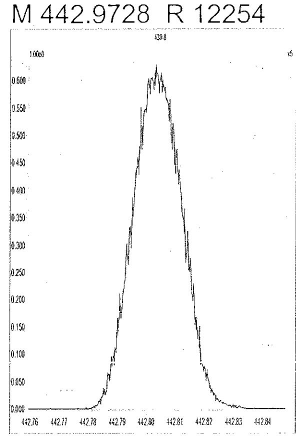

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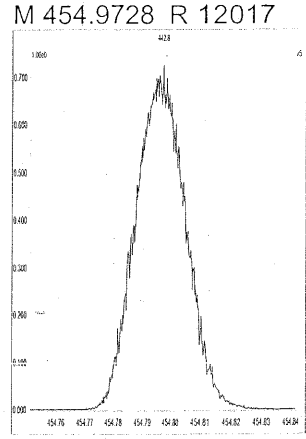

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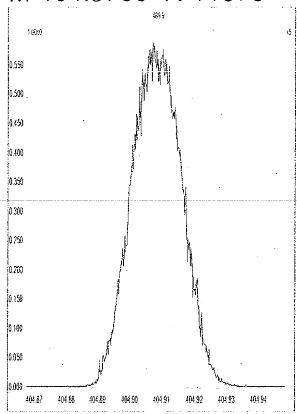
Printed: Friday, October 03, 2014 10:40:04 Central Daylight Time

M 404.9760 R 11576



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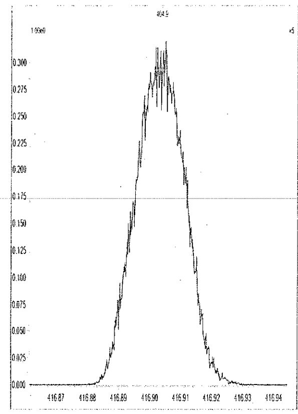

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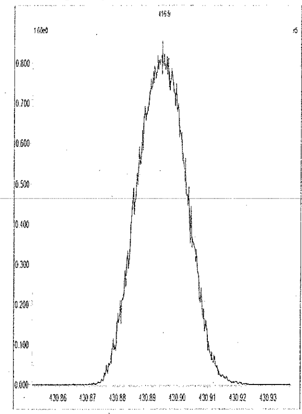

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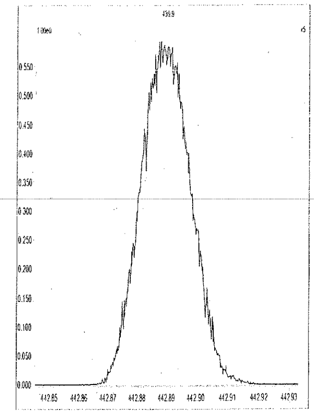

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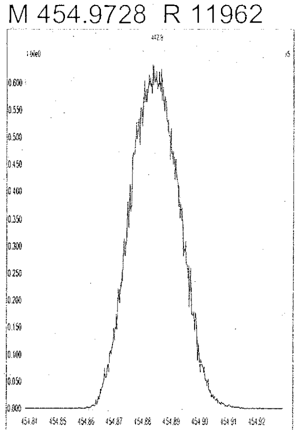

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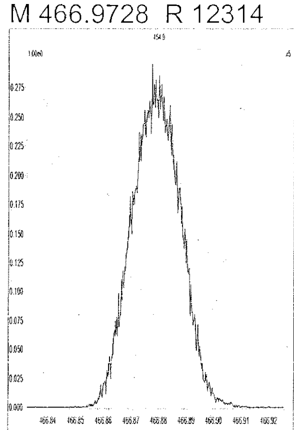

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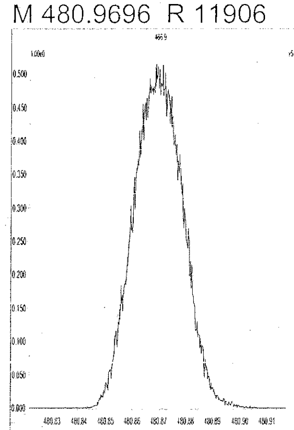

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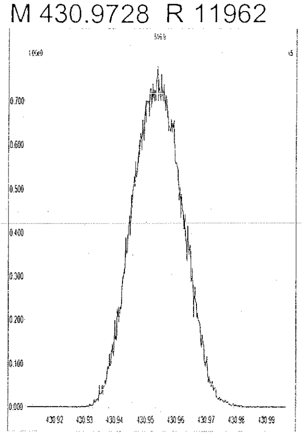

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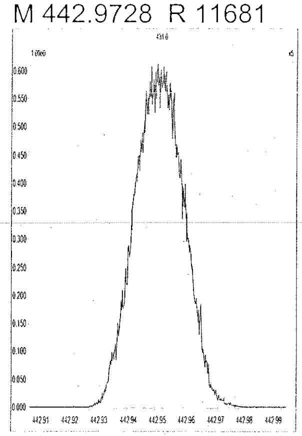

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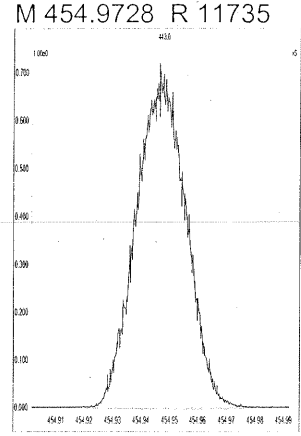

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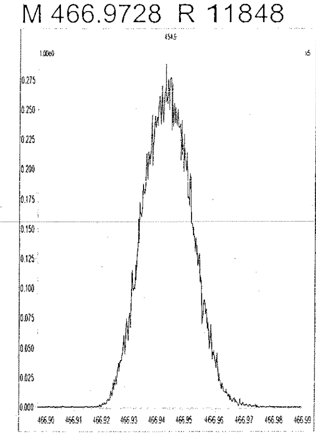

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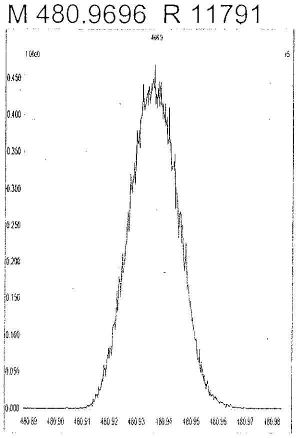

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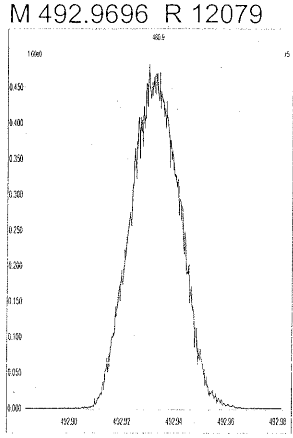

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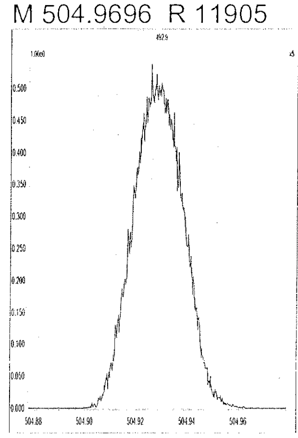

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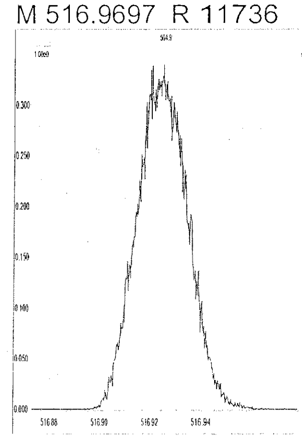

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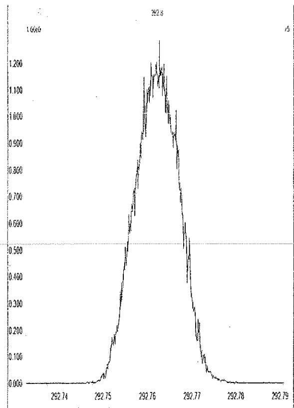

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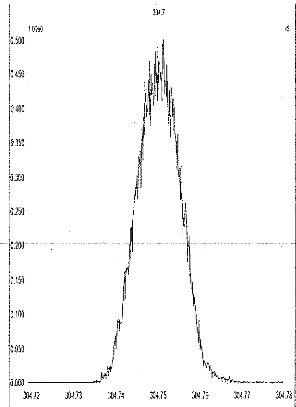

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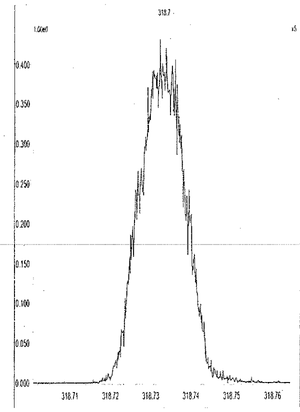

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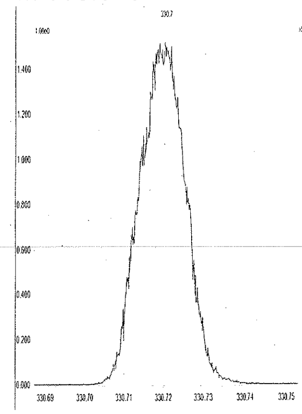

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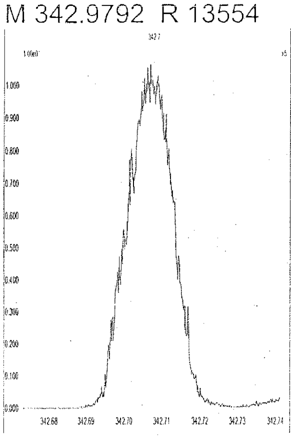

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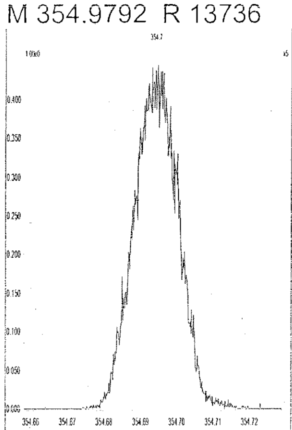

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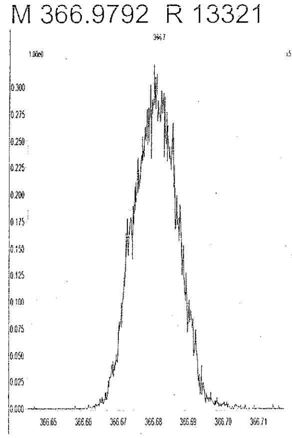

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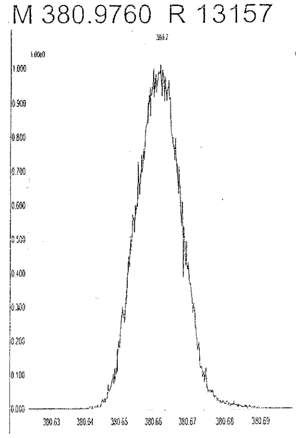

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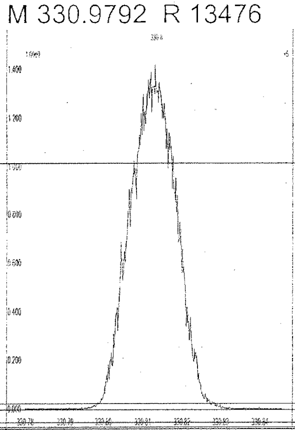

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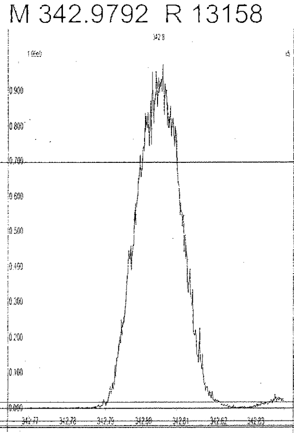

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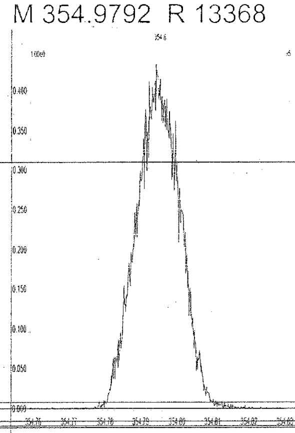

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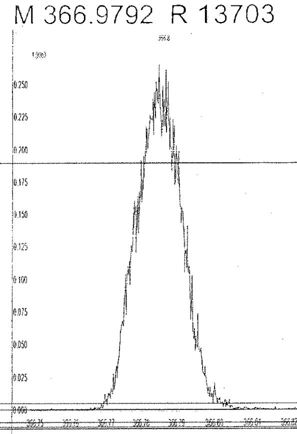

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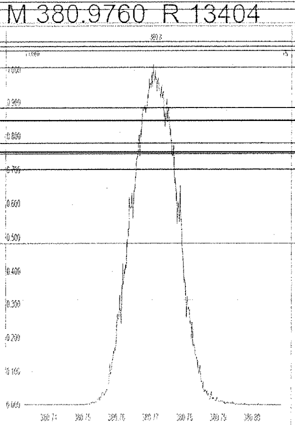

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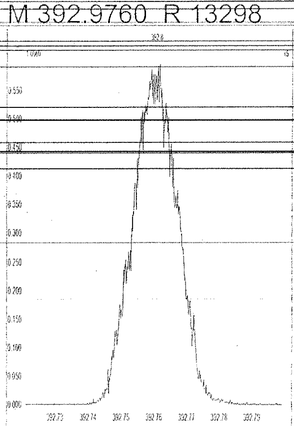

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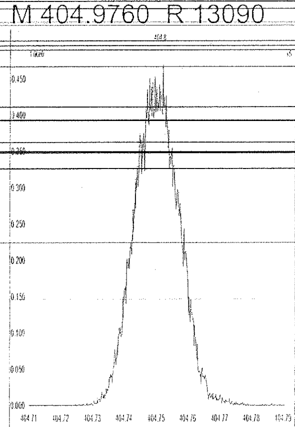

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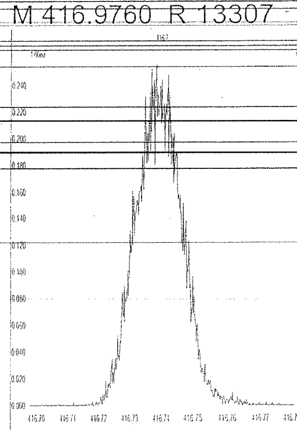

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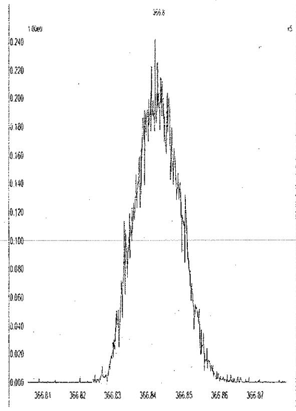

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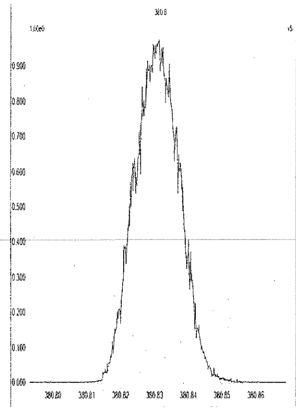

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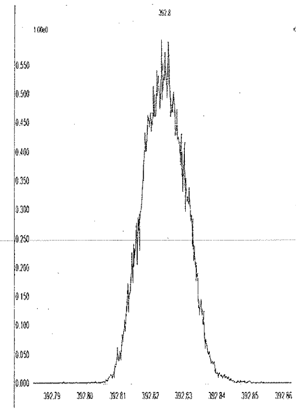

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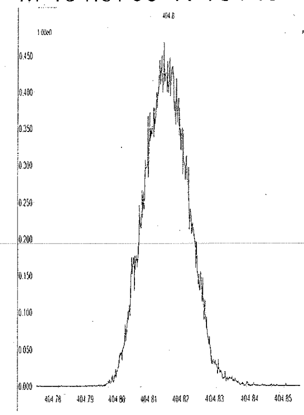

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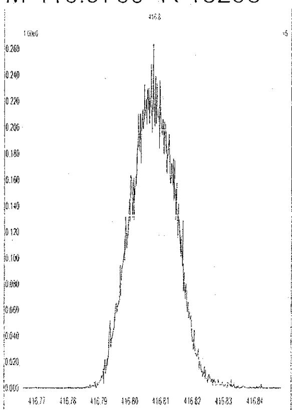

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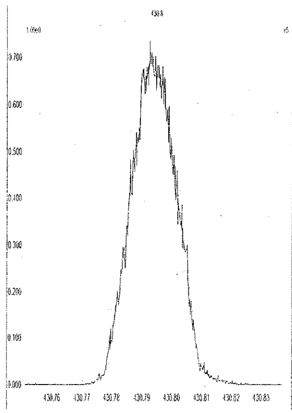

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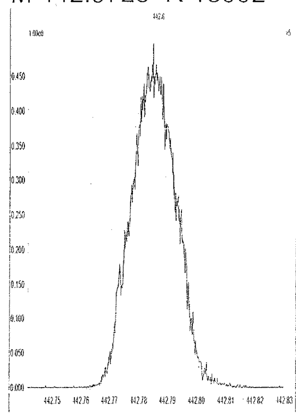

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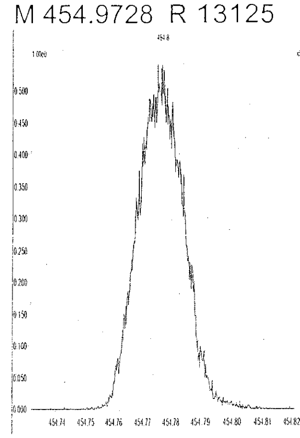

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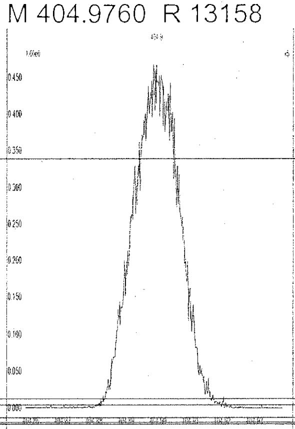

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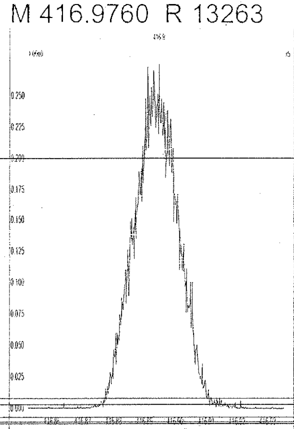

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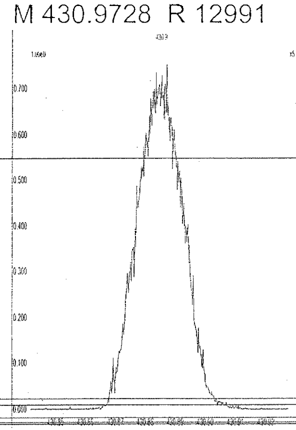

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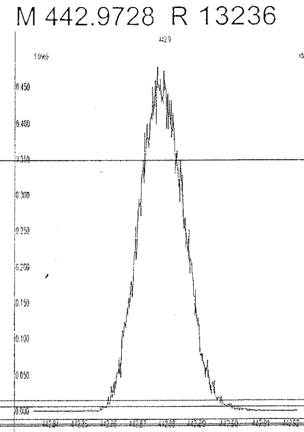

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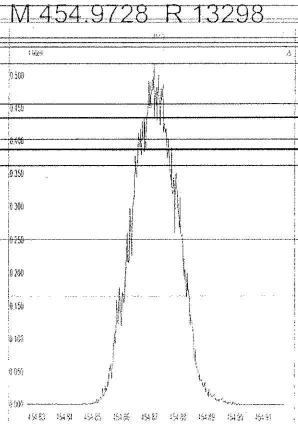

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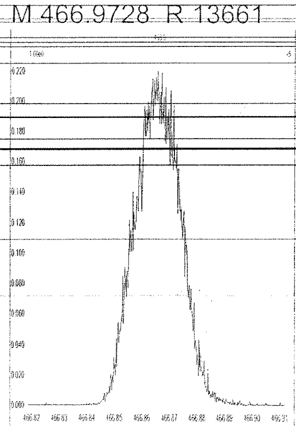

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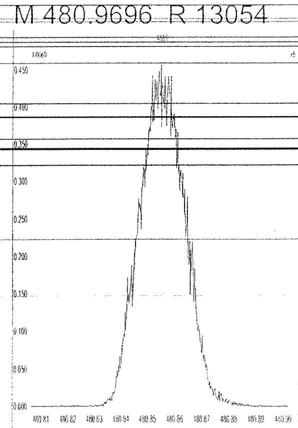

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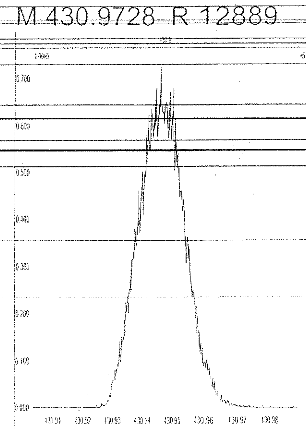

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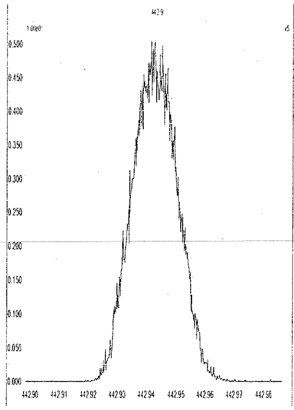

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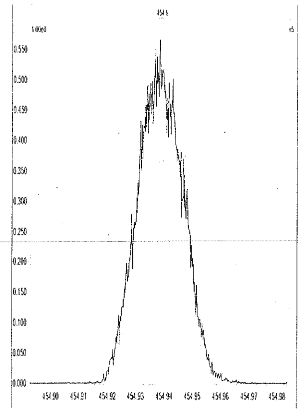

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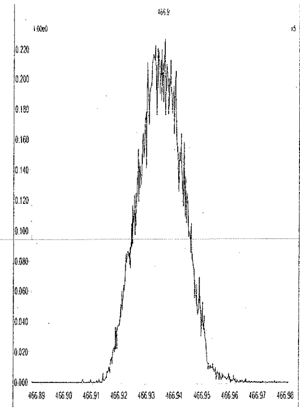

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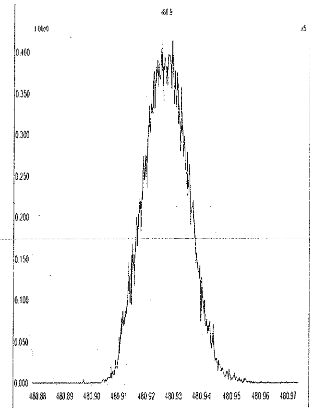

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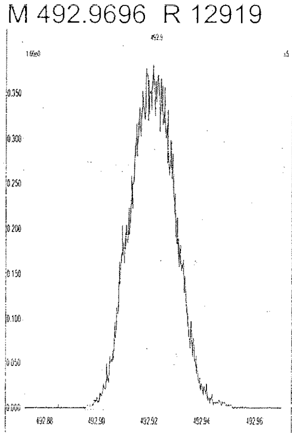

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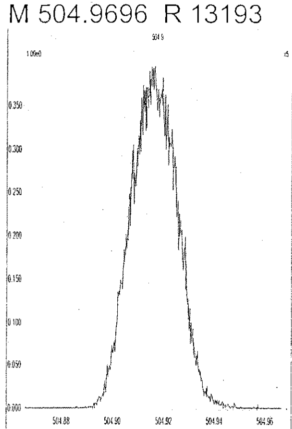

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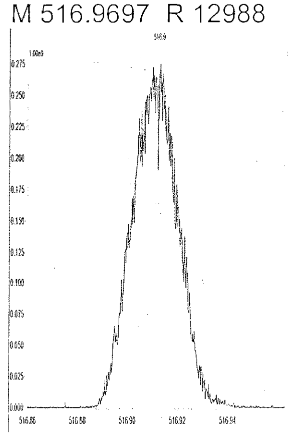


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

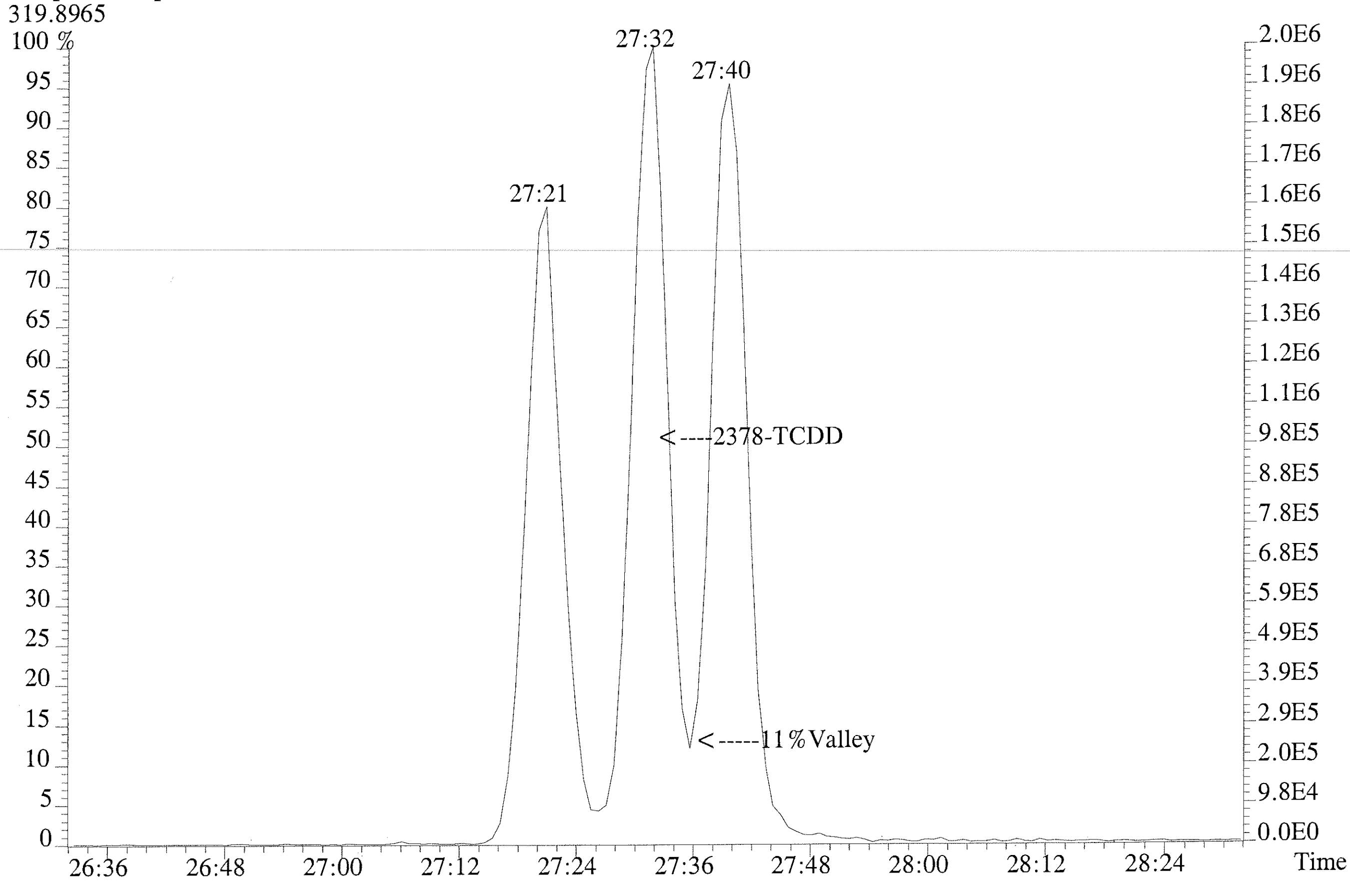
WDM

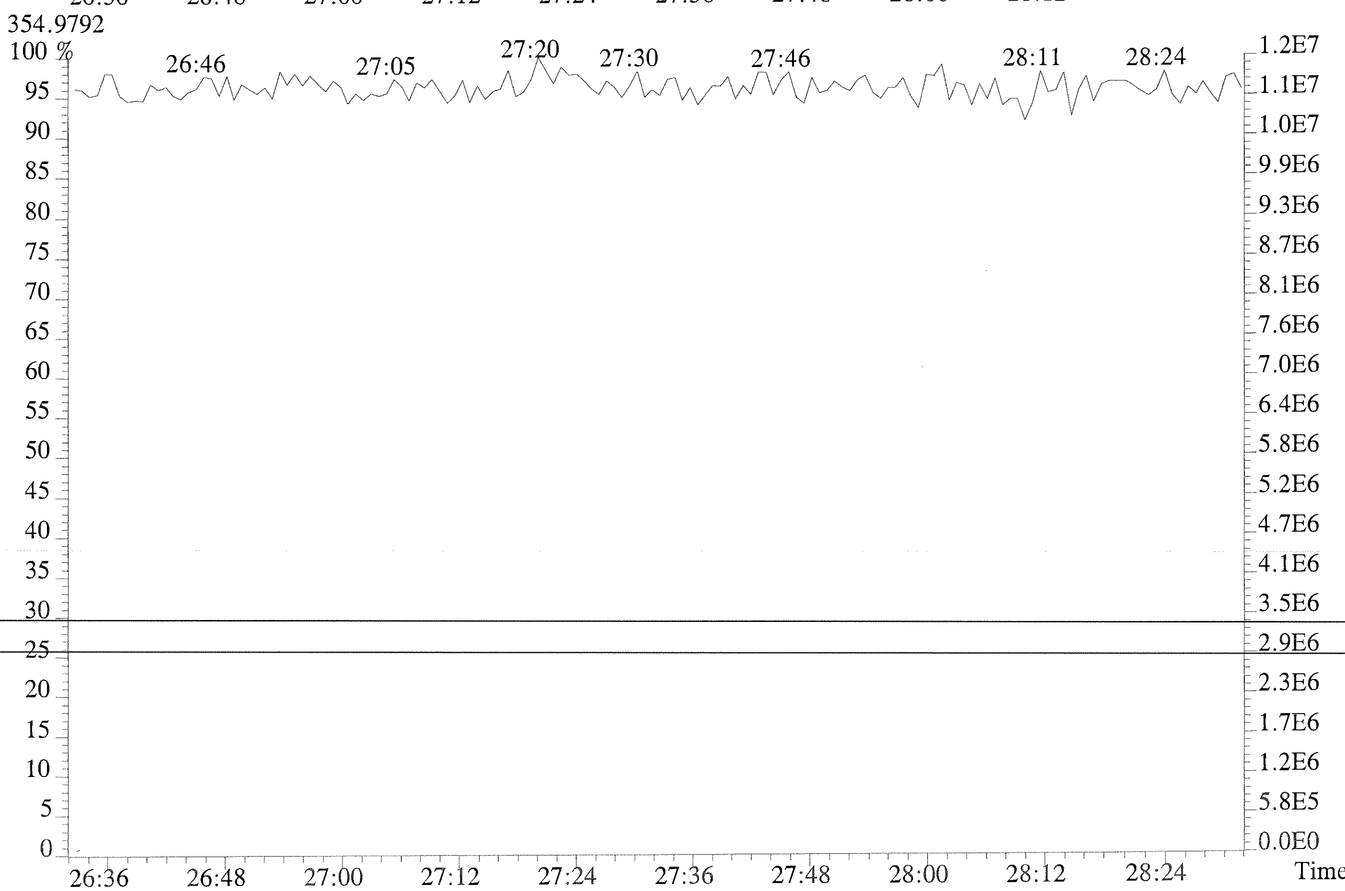
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P231751
Date Analyzed: 3-OCT-2014
Time Analyzed: 23:26:58

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:10	28:49
TCDD	23:51	28:38
PeCDF	28:44	33:17
PeCDD	30:24	33:01
HxCDF	33:58	36:34
HxCDD	34:30	36:09
HpCDF	37:49	39:11
HpCDD	38:04	38:43

% Valley 2378-TCDD: 11 %

File:P231751 #1-730 Acq: 3-OCT-2014 23:26:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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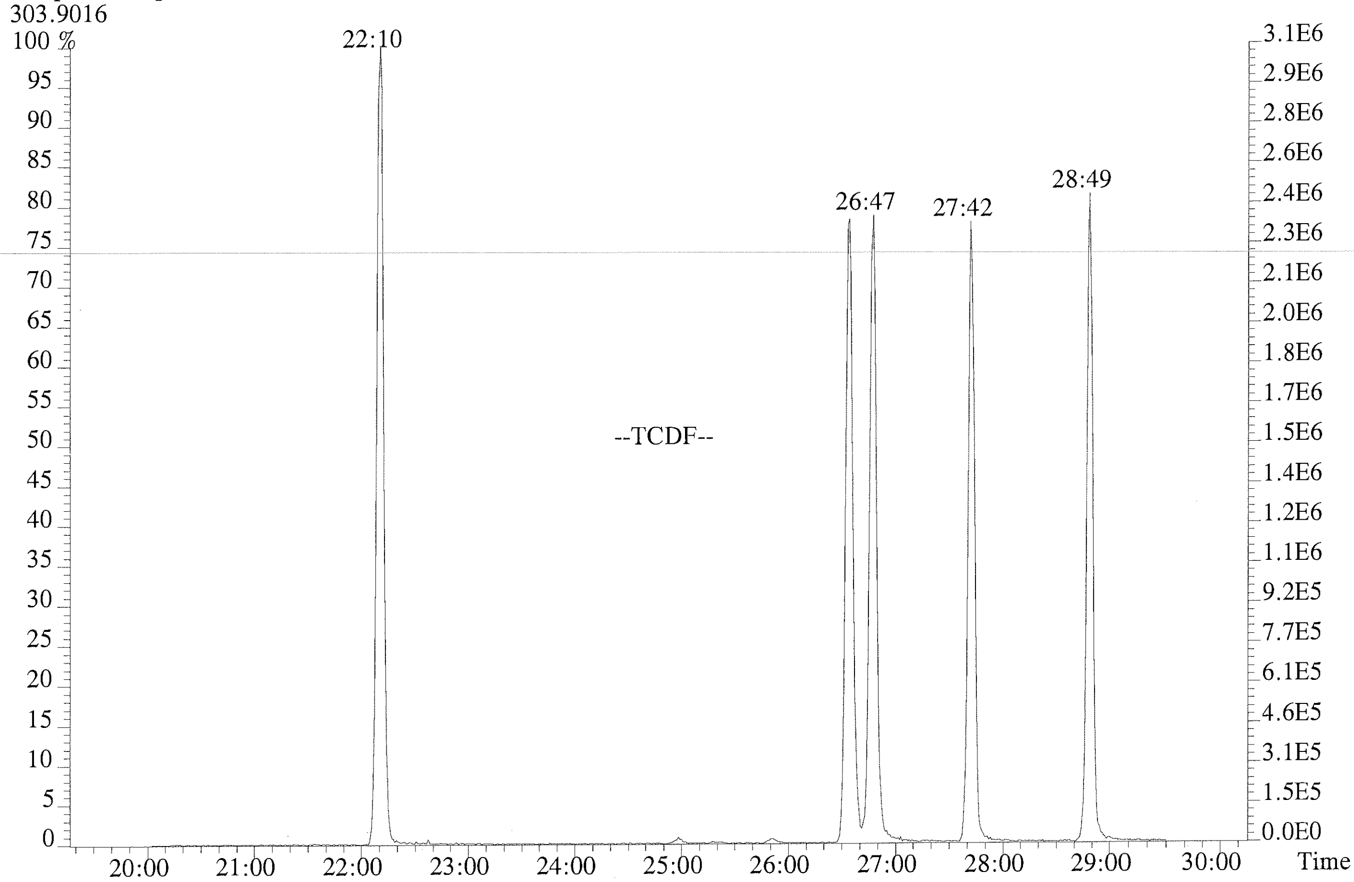

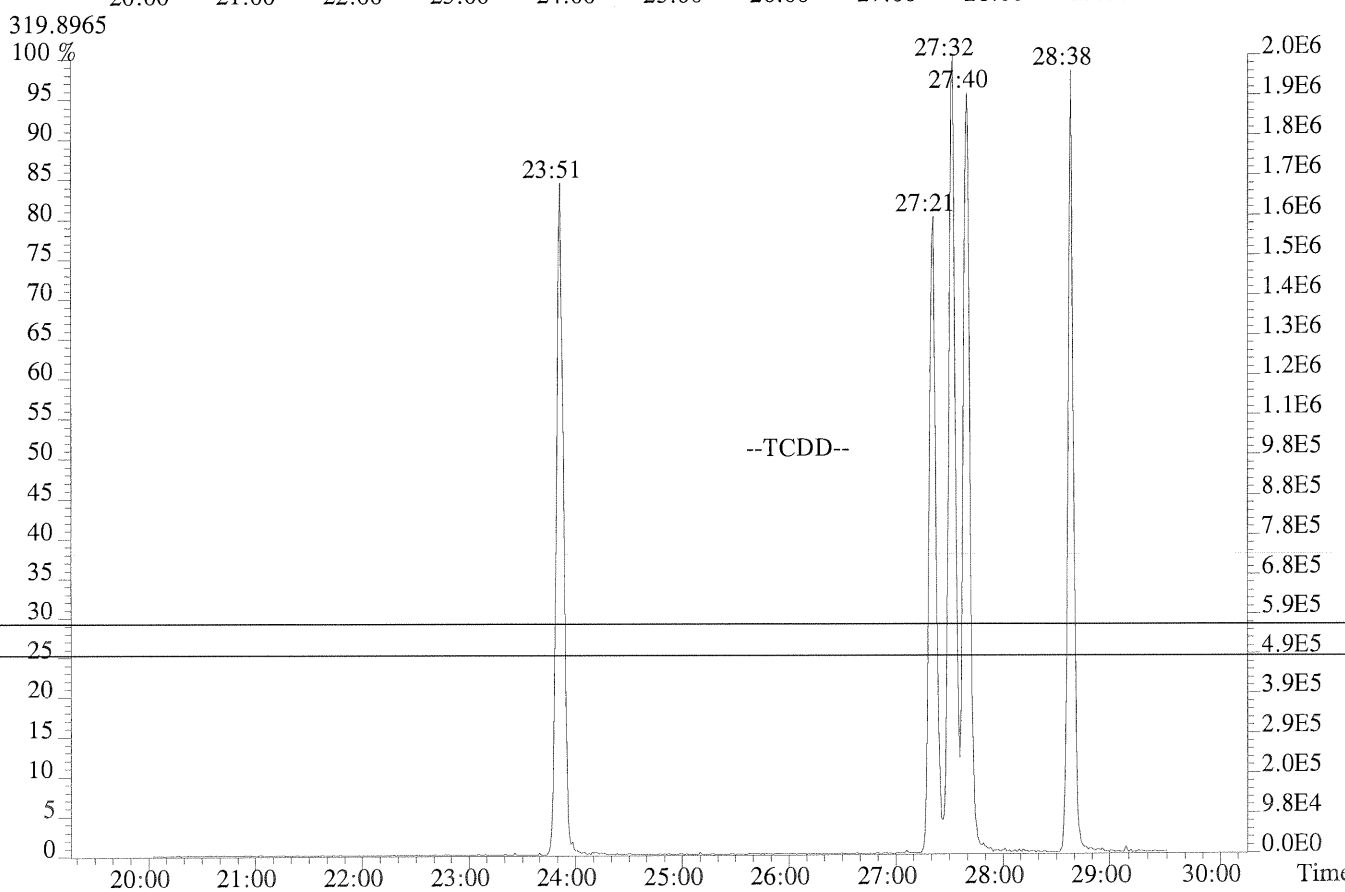

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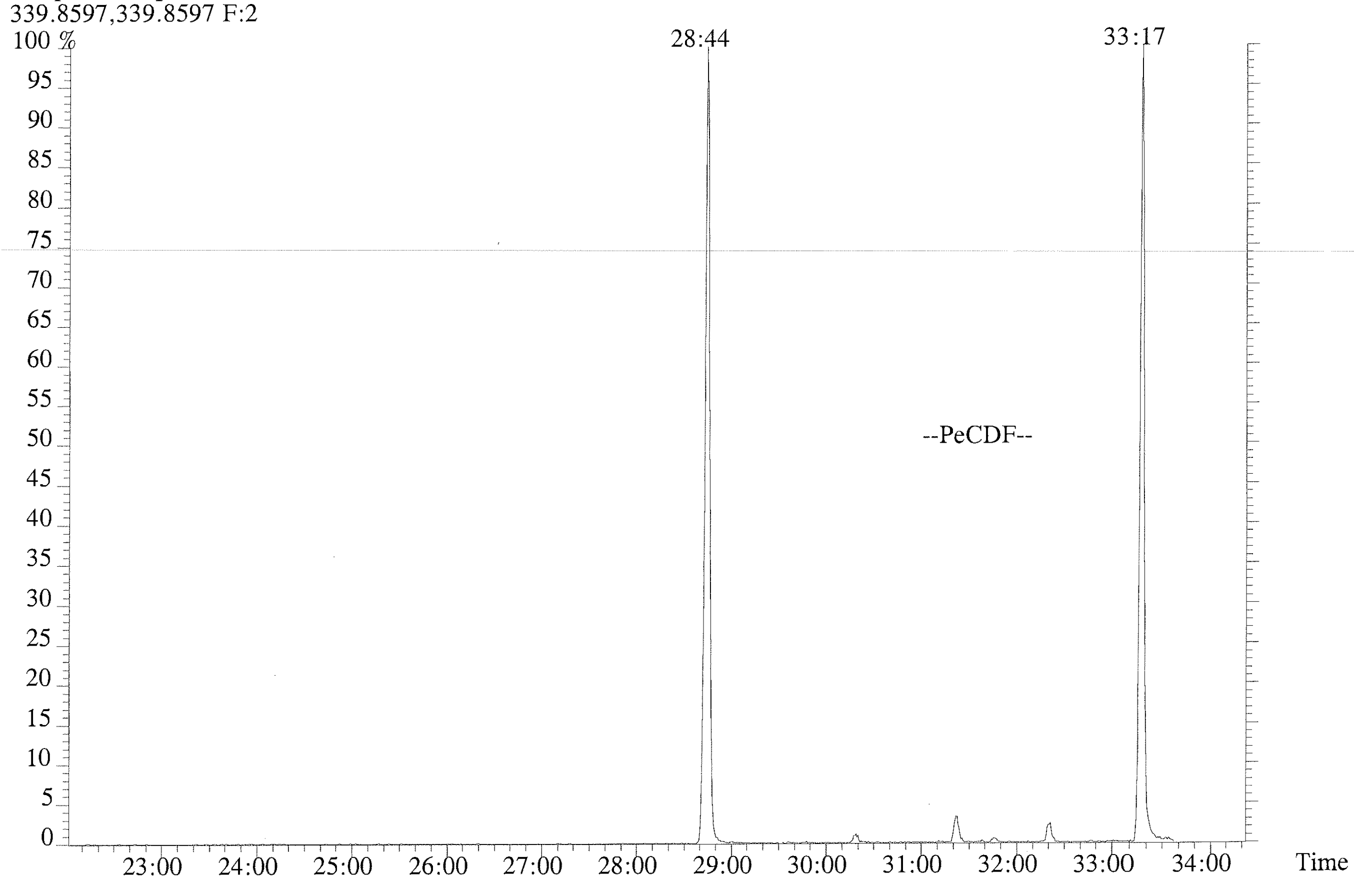

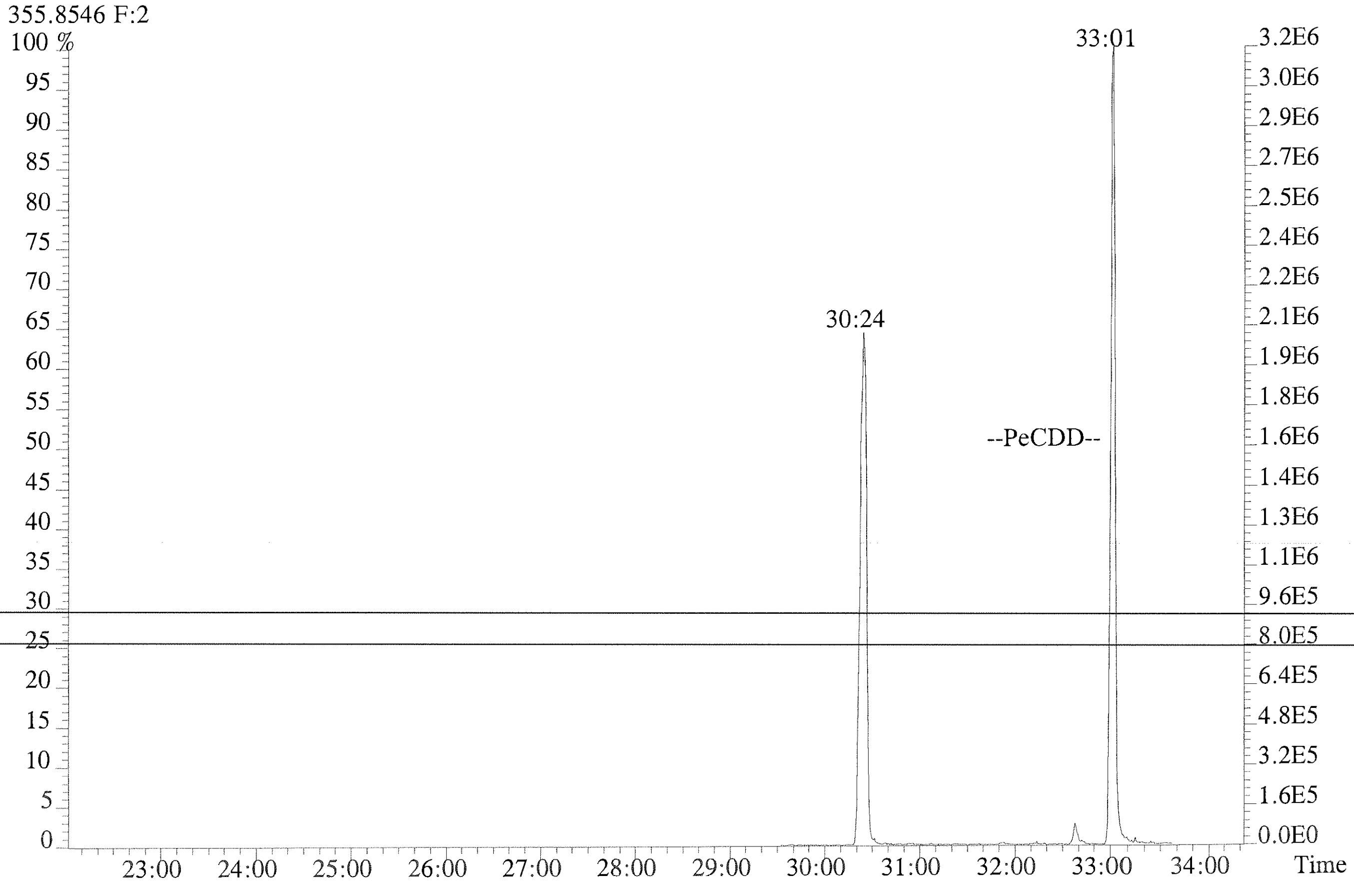

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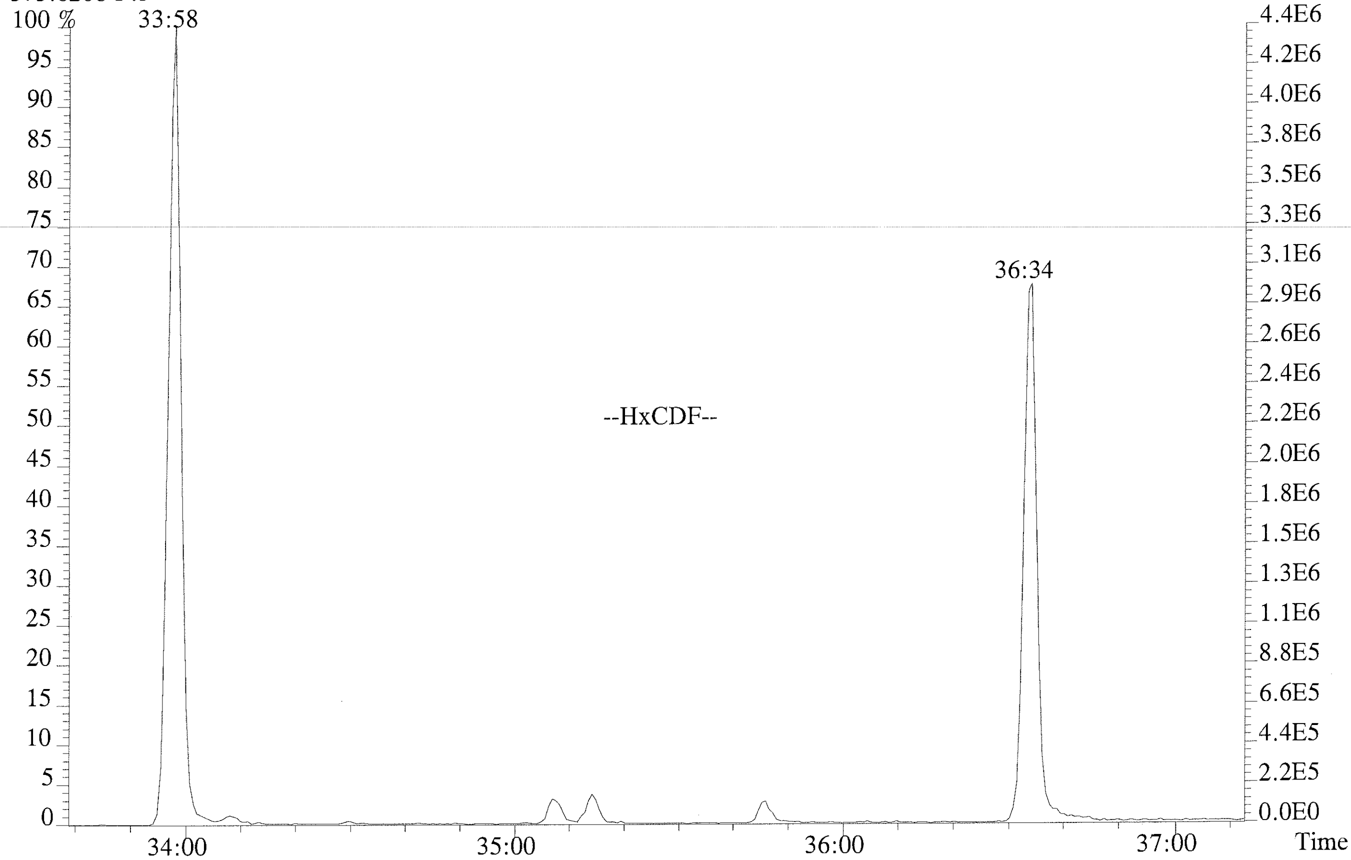
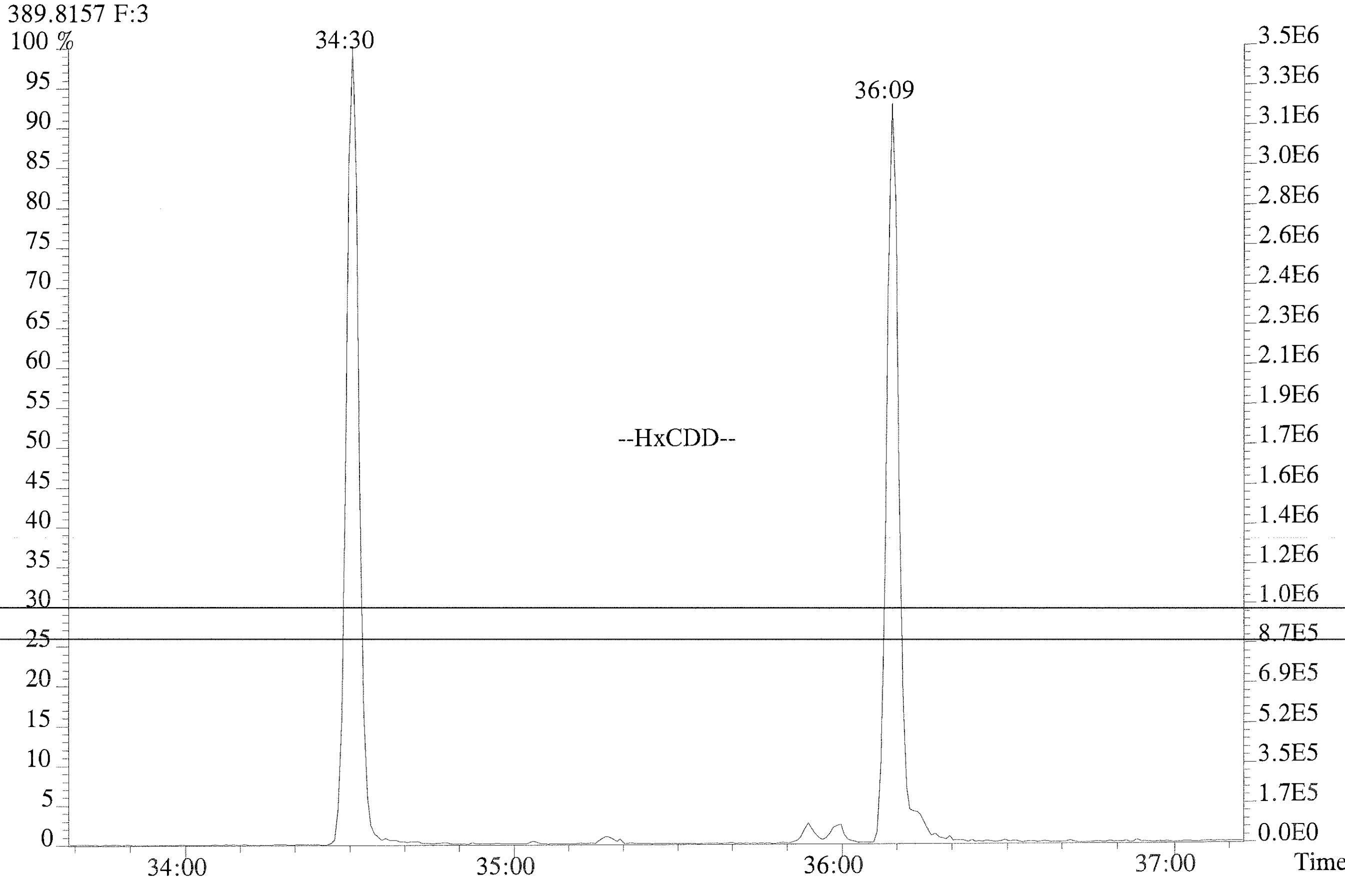
Sample#1 Exp:WINDOW DEFINE

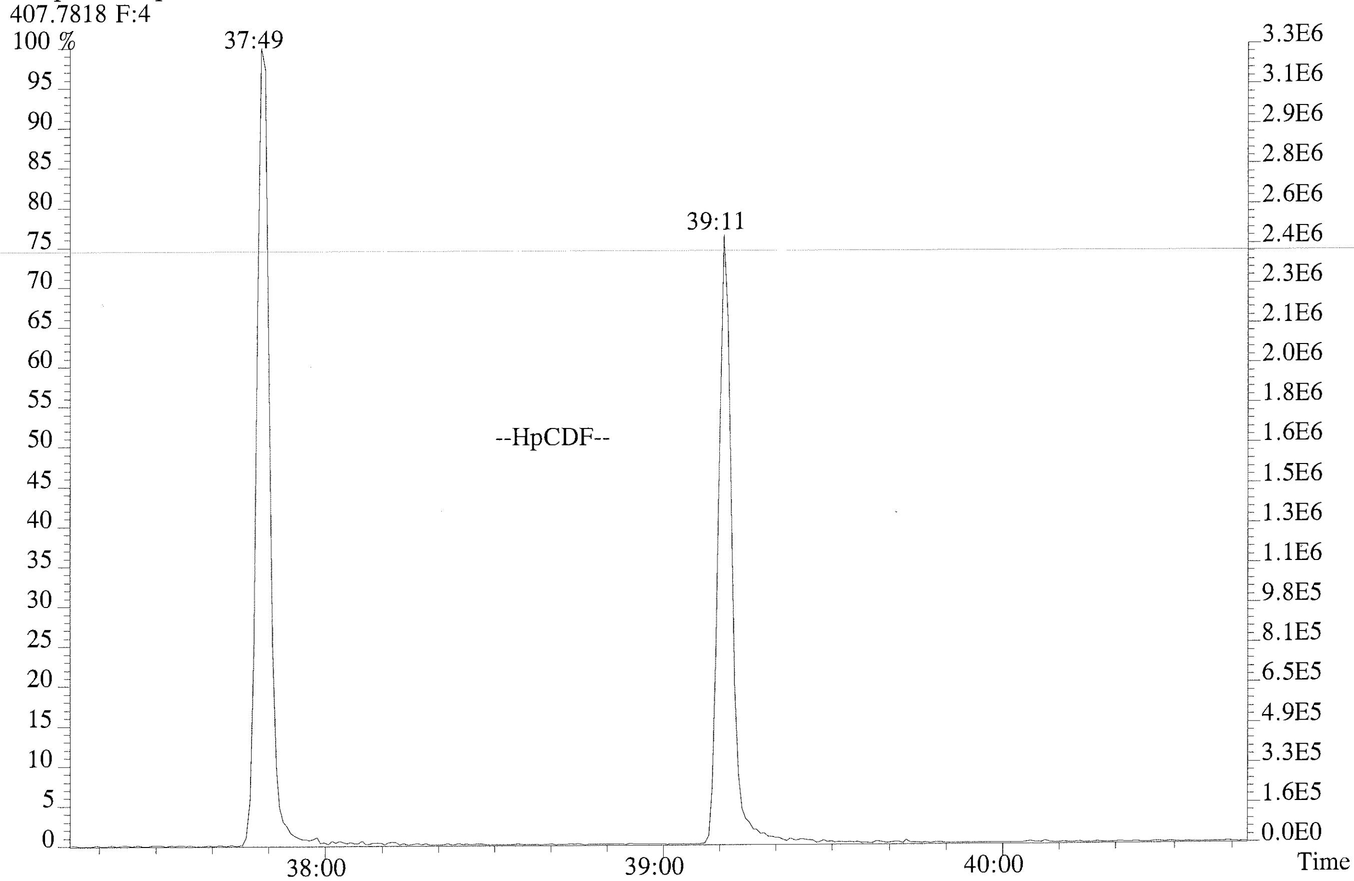
373.8208 F:3

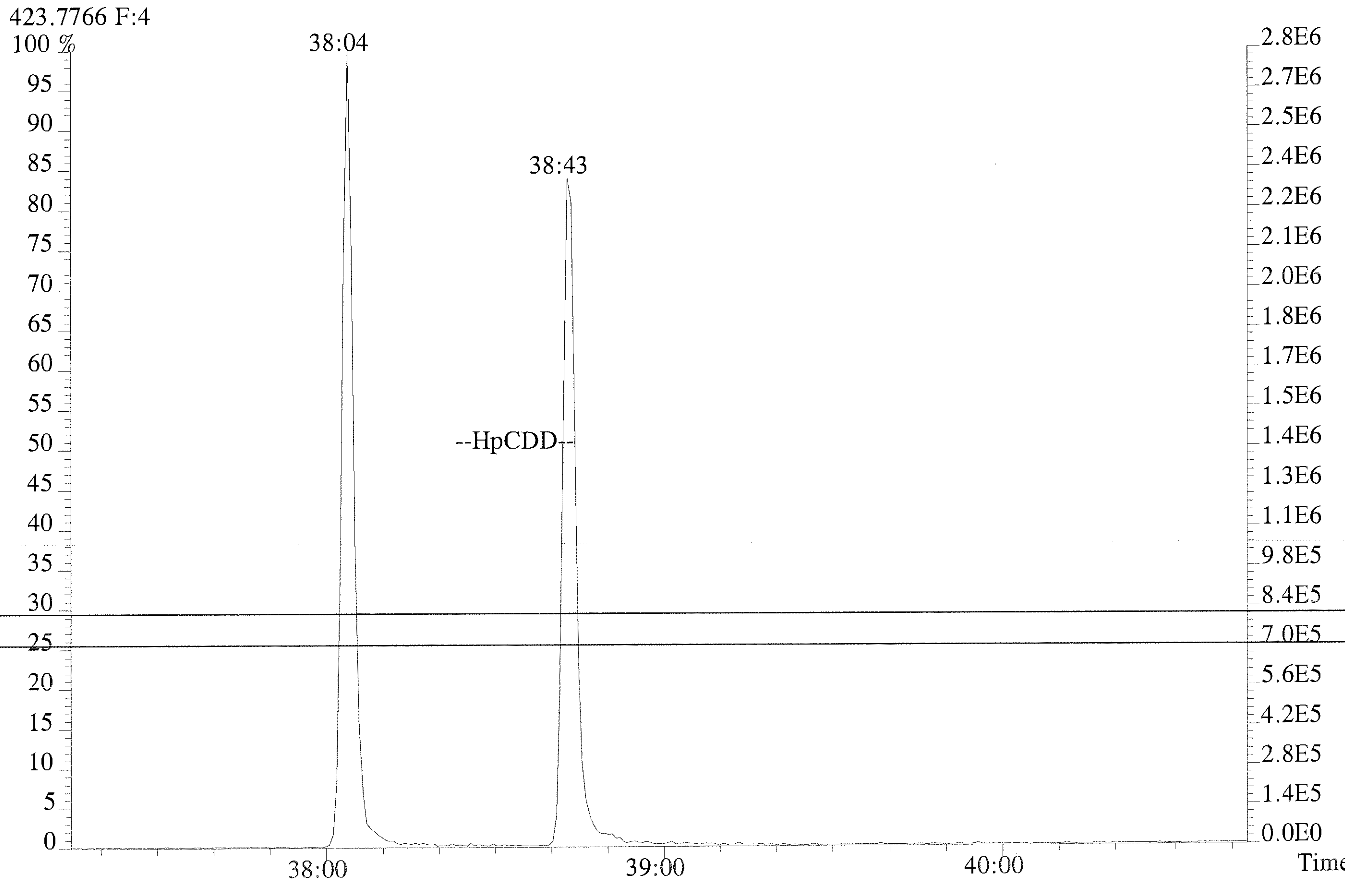


389.8157 F:3



File:P231751 #1-315 Acq: 3-OCT-2014 23:26:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P231750 Analysis Date: 3-OCT-14 Time: 22:39:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.6	7.8 - 12.9	-3.8
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	3.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	51	41 - 61	2.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.89	0.76-1.02	102	79 - 126	2.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.6	8.4 - 12.0	-3.5
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 60	1.8
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 61	-0.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	45 - 56	2.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	50	44 - 57	-0.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	50	45 - 56	-0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.89	0.76-1.02	110	63 - 159	9.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04   GC Column ID: DB-5MSUI

VER Data Filename: P231750   Analysis Date: 3-OCT-14   Time: 22:39:07

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	98	82 - 121	-2.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	77	62 - 160	-23.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	99	85 - 117	-0.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	97	85 - 118	-3.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	110	72 - 138	9.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	256	96 - 415	28.1
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	79	76 - 130	-20.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	79	77 - 130	-20.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	70 - 143	0.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	112	74 - 135	11.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	73 - 137	-0.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	105	78 - 129	4.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	126	77 - 129	26.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.4	7.8 - 12.7	-5.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #7 Filename P231750 Samp: 1 Inj: 1 Acquired: 3-OCT-14 22:39:07
Processed: 7-OCT-14 08:35:56 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	7.162e+03	9.287e+03	0.77	yes	no	0.986
2	Unk	1,2,3,7,8-PeCDF	31:22	5.546e+04	3.558e+04	1.56	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:20	5.160e+04	3.360e+04	1.54	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:08	4.585e+04	3.664e+04	1.25	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:14	4.831e+04	3.850e+04	1.25	yes	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:46	4.526e+04	3.594e+04	1.26	yes	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:32	4.009e+04	3.151e+04	1.27	yes	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	3.943e+04	3.829e+04	1.03	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:11	3.051e+04	3.033e+04	1.01	yes	no	1.274
10	Unk	OCDF	41:35	5.404e+04	6.055e+04	0.89	yes	no	1.195
11	Unk	2,3,7,8-TCDD	27:40	5.234e+03	6.788e+03	0.77	yes	no	1.061
12	Unk	1,2,3,7,8-PeCDD	32:38	3.669e+04	2.302e+04	1.59	yes	no	0.992
13	Unk	1,2,3,4,7,8-HxCDD	35:54	3.401e+04	2.656e+04	1.28	yes	no	1.118
14	Unk	1,2,3,6,7,8-HxCDD	36:00	3.323e+04	2.666e+04	1.25	yes	no	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:14	3.588e+04	2.910e+04	1.23	yes	no	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:44	2.980e+04	2.836e+04	1.05	yes	no	1.053
17	Unk	OCDD	41:23	4.909e+04	5.497e+04	0.89	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	26:46	7.735e+04	9.560e+04	0.81	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:21	1.101e+05	6.860e+04	1.61	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:20	1.090e+05	6.842e+04	1.59	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:07	4.604e+04	8.862e+04	0.52	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:13	5.270e+04	1.018e+05	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:45	4.975e+04	9.550e+04	0.52	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:32	4.344e+04	8.349e+04	0.52	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:49	3.429e+04	7.796e+04	0.44	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:11	2.963e+04	6.601e+04	0.45	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:39	5.171e+04	6.612e+04	0.78	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:37	7.274e+04	4.616e+04	1.58	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	35:54	5.985e+04	4.796e+04	1.25	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	35:59	5.943e+04	4.678e+04	1.27	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:43	5.683e+04	5.283e+04	1.08	yes	no	0.850
32	IS	13C-OCDD	41:22	8.323e+04	9.119e+04	0.91	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	27:00	5.301e+04	6.656e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:14	6.665e+04	5.101e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:40	1.237e+04				no	1.099

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

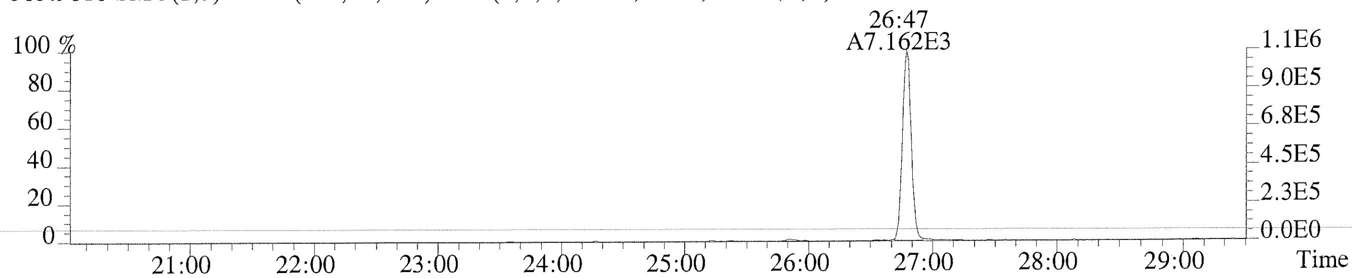
Run #7 Filename P231750 Samp: 1 Inj: 1 Acquired: 3-OCT-14 22:39:07
Processed: 7-OCT-14 08:35:561 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.13e+06	5.16e+02	2.2e+03	1.48e+06	2.54e+03	5.8e+02
2	1,2,3,7,8-PeCDF	1.04e+07	6.92e+02	1.5e+04	6.66e+06	2.04e+03	3.3e+03
3	2,3,4,7,8-PeCDF	1.02e+07	6.92e+02	1.5e+04	6.67e+06	2.04e+03	3.3e+03
4	1,2,3,4,7,8-HxCDF	1.02e+07	1.10e+03	9.3e+03	8.17e+06	5.48e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	1.01e+07	1.10e+03	9.2e+03	8.11e+06	5.48e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	9.81e+06	1.10e+03	9.0e+03	7.95e+06	5.48e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	8.57e+06	1.10e+03	7.8e+03	6.80e+06	5.48e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	8.84e+06	3.65e+03	2.4e+03	8.50e+06	3.97e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	6.35e+06	3.65e+03	1.7e+03	6.18e+06	3.97e+03	1.6e+03
10	OCDF	9.51e+06	5.08e+03	1.9e+03	1.10e+07	1.08e+04	1.0e+03
11	2,3,7,8-TCDD	8.95e+05	1.06e+03	8.5e+02	1.15e+06	1.21e+03	9.5e+02
12	1,2,3,7,8-PeCDD	7.25e+06	8.64e+02	8.4e+03	4.51e+06	3.68e+02	1.2e+04
13	1,2,3,4,7,8-HxCDD	7.47e+06	3.80e+02	2.0e+04	5.73e+06	6.88e+02	8.3e+03
14	1,2,3,6,7,8-HxCDD	7.12e+06	3.80e+02	1.9e+04	5.66e+06	6.88e+02	8.2e+03
15	1,2,3,7,8,9-HxCDD	7.62e+06	3.80e+02	2.0e+04	5.94e+06	6.88e+02	8.6e+03
16	1,2,3,4,6,7,8-HpCDD	6.61e+06	1.08e+03	6.1e+03	6.19e+06	1.22e+03	5.1e+03
17	OCDD	8.84e+06	5.47e+03	1.6e+03	9.80e+06	2.67e+03	3.7e+03
18	13C-2,3,7,8-TCDF	1.24e+07	1.87e+03	6.6e+03	1.53e+07	1.45e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.01e+07	1.26e+03	1.6e+04	1.27e+07	1.88e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	2.19e+07	1.26e+03	1.7e+04	1.37e+07	1.88e+03	7.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.03e+07	1.43e+03	7.2e+03	1.98e+07	1.22e+03	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	1.12e+07	1.43e+03	7.8e+03	2.19e+07	1.22e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	1.10e+07	1.43e+03	7.7e+03	2.11e+07	1.22e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	9.32e+06	1.43e+03	6.5e+03	1.80e+07	1.22e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.83e+06	2.38e+03	3.3e+03	1.76e+07	8.39e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.22e+06	2.38e+03	2.6e+03	1.37e+07	8.39e+03	1.6e+03
27	13C-2,3,7,8-TCDD	8.96e+06	6.08e+03	1.5e+03	1.13e+07	2.71e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.45e+07	8.12e+02	1.8e+04	9.25e+06	9.76e+02	9.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.29e+07	1.86e+03	6.9e+03	1.04e+07	9.52e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	1.27e+07	1.86e+03	6.8e+03	1.01e+07	9.52e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.25e+07	3.25e+03	3.8e+03	1.15e+07	2.13e+03	5.4e+03
32	13C-OCDD	1.53e+07	2.10e+03	7.3e+03	1.68e+07	9.04e+03	1.9e+03
33	13C-1,2,3,4-TCDD	8.97e+06	6.08e+03	1.5e+03	1.13e+07	2.71e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.39e+07	1.86e+03	7.5e+03	1.08e+07	9.52e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.12e+06	1.20e+03	1.8e+03			

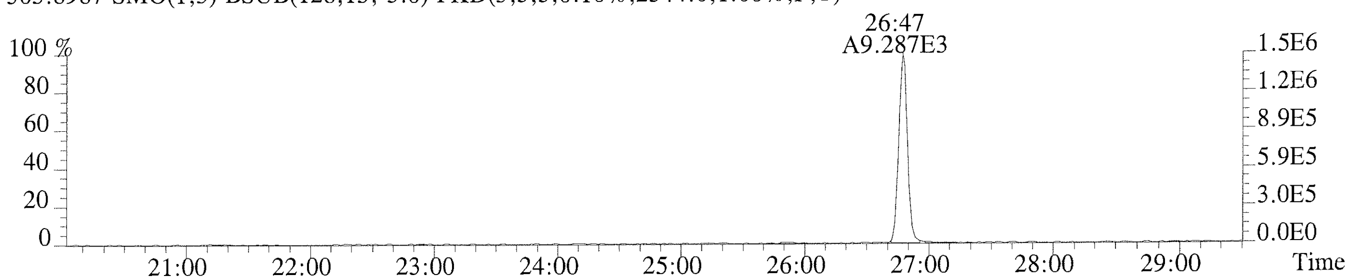
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

File:P231750 #1-730 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

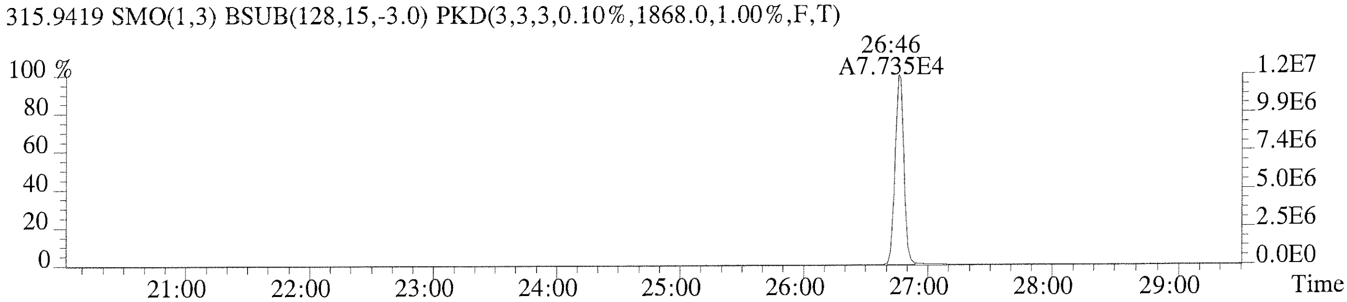
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



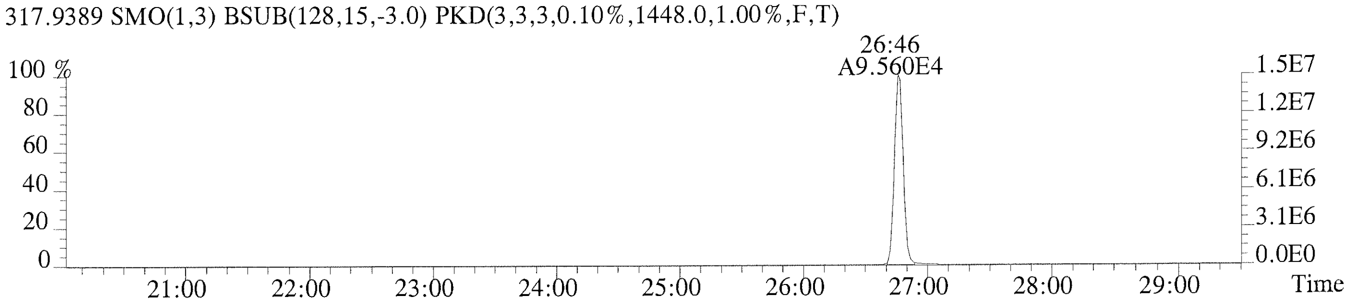
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2544.0,1.00%,F,T)



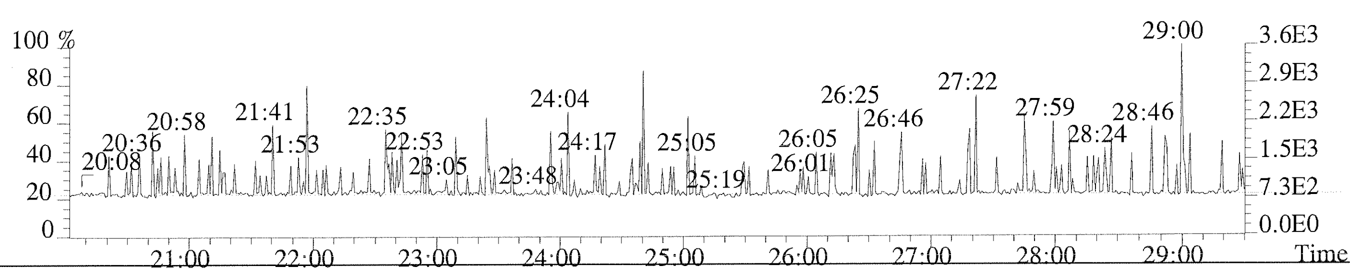
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



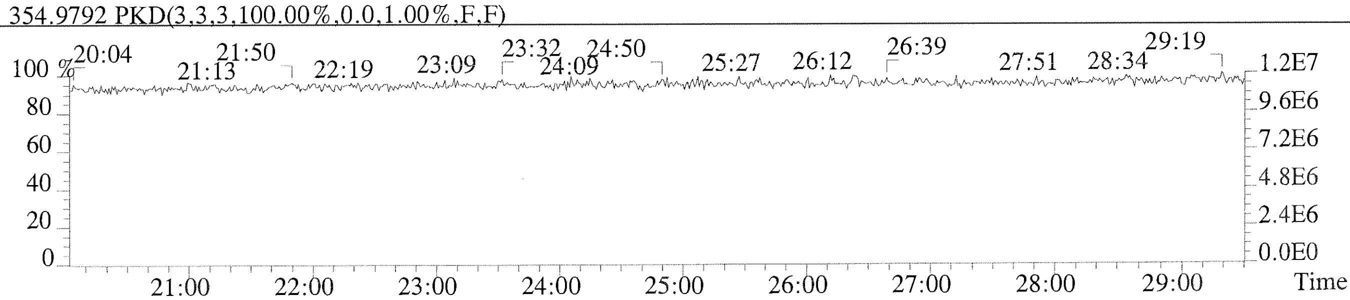
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

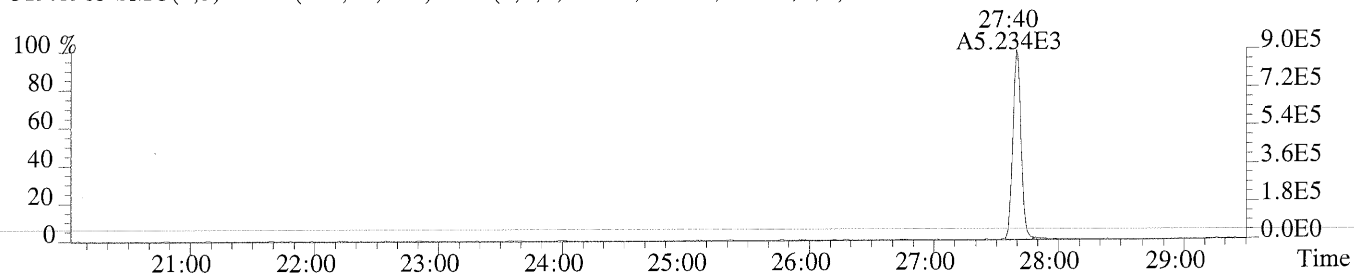


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

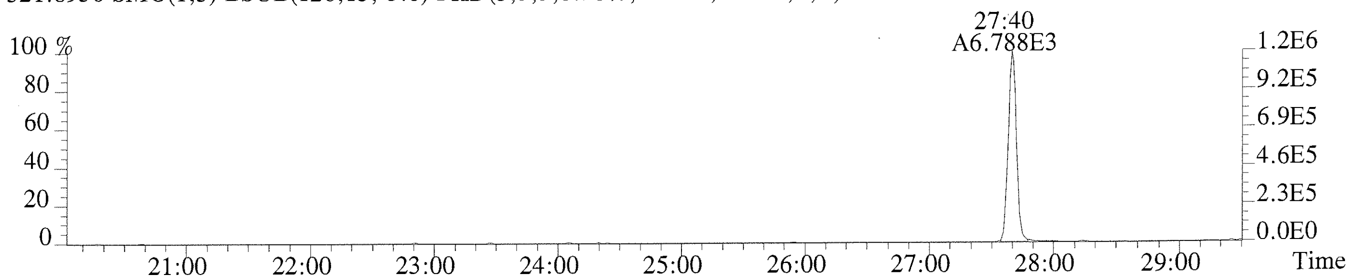


File:P231750 #1-730 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

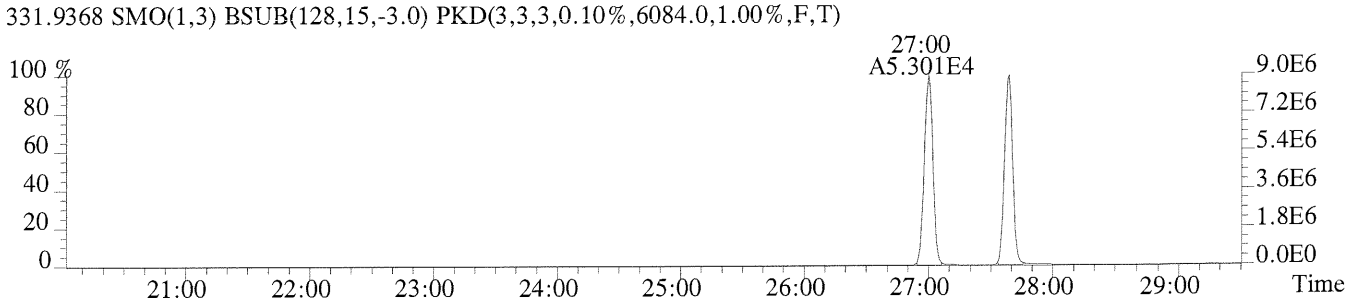
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



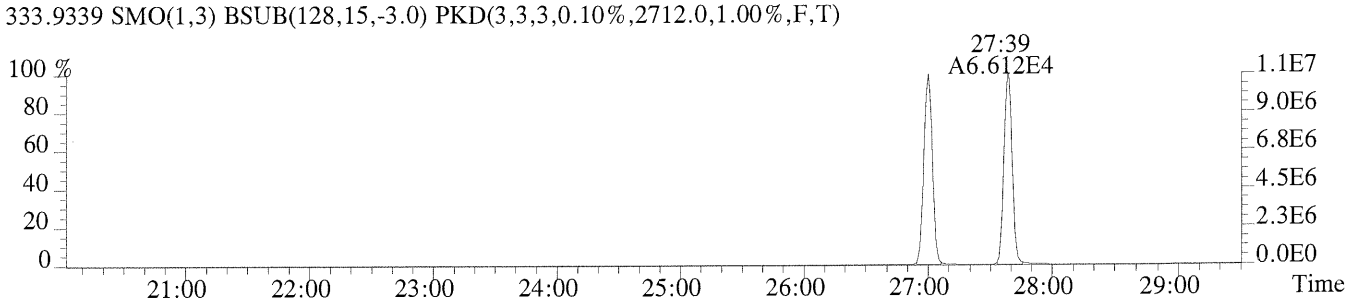
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



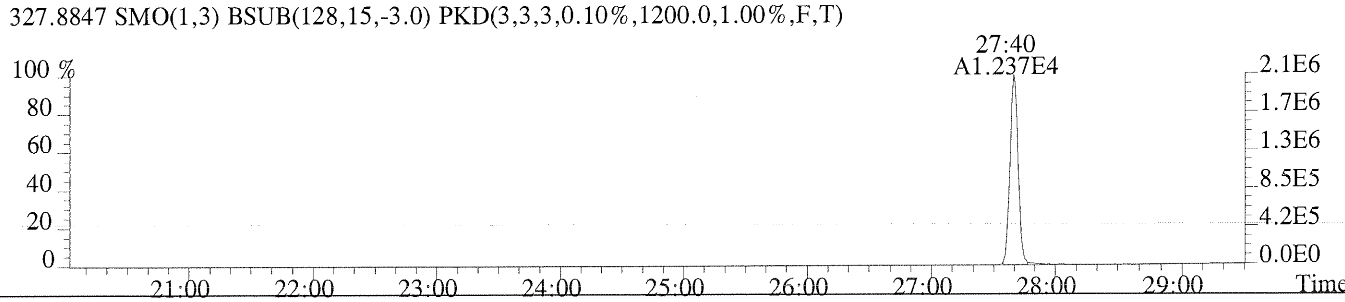
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6084.0,1.00%,F,T)



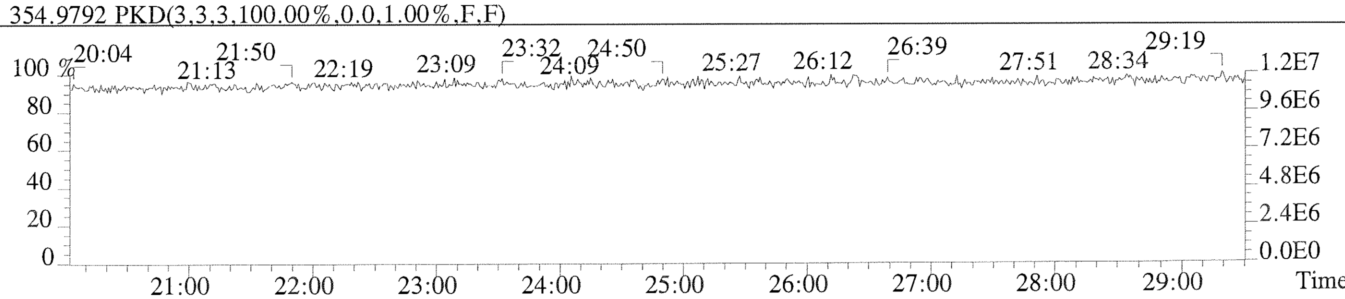
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



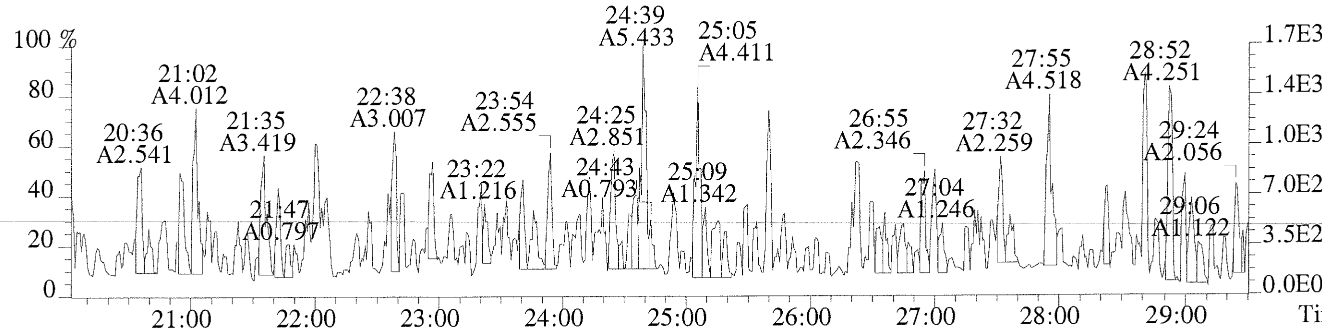
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



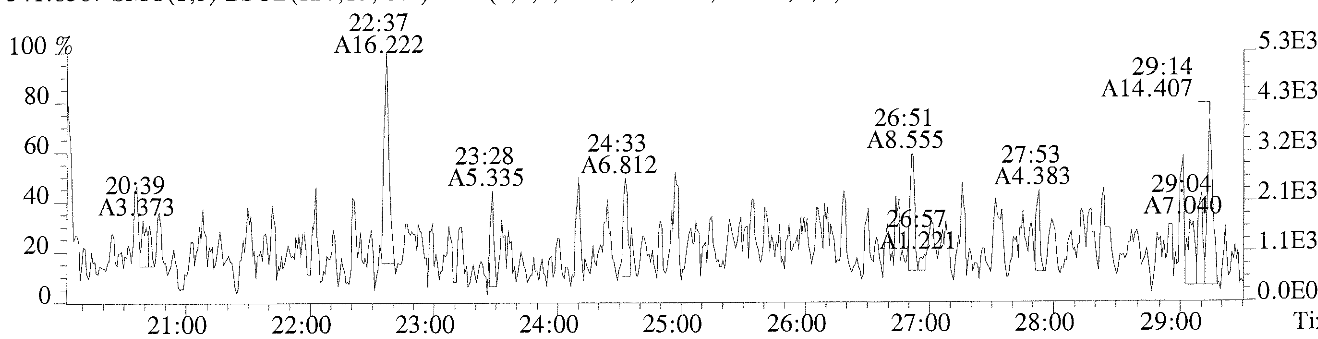
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



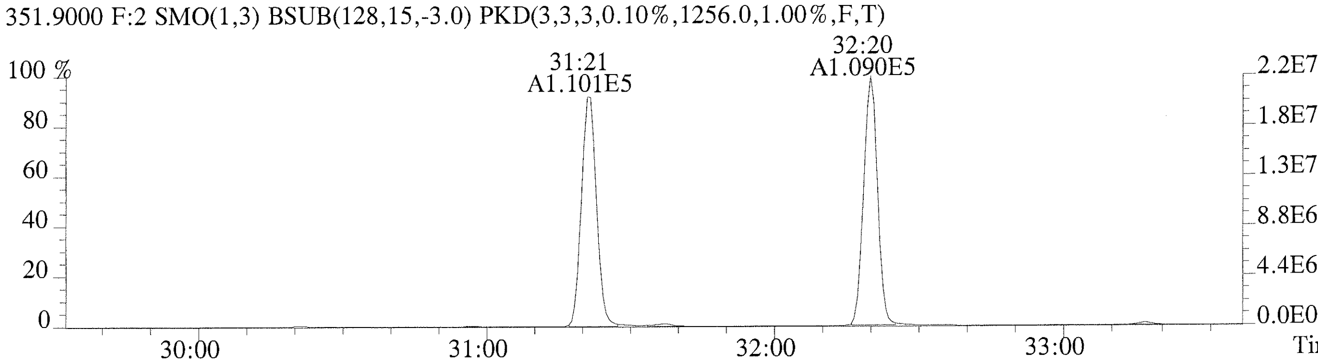
File:P231750 #1-730 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



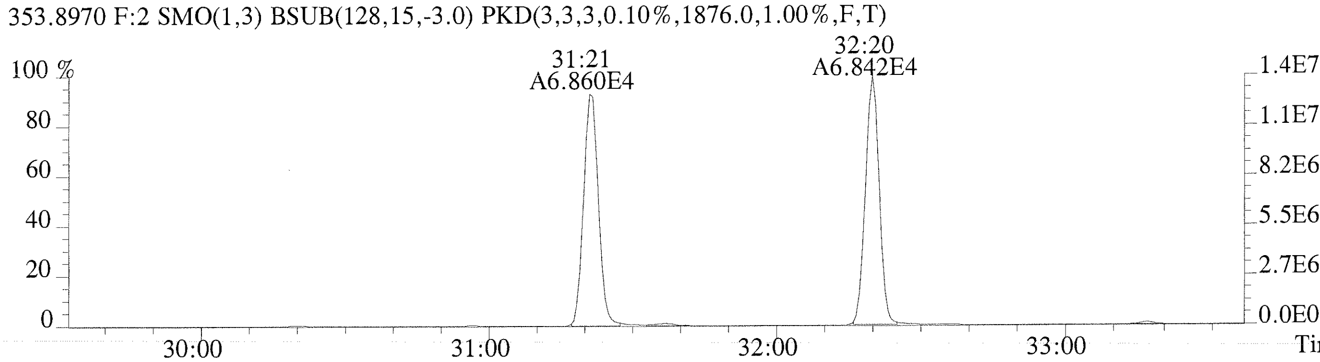
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



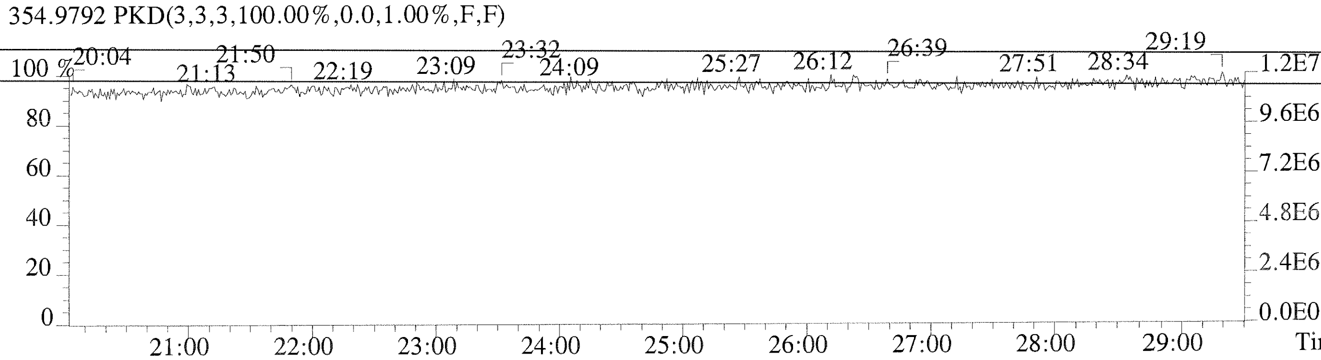
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



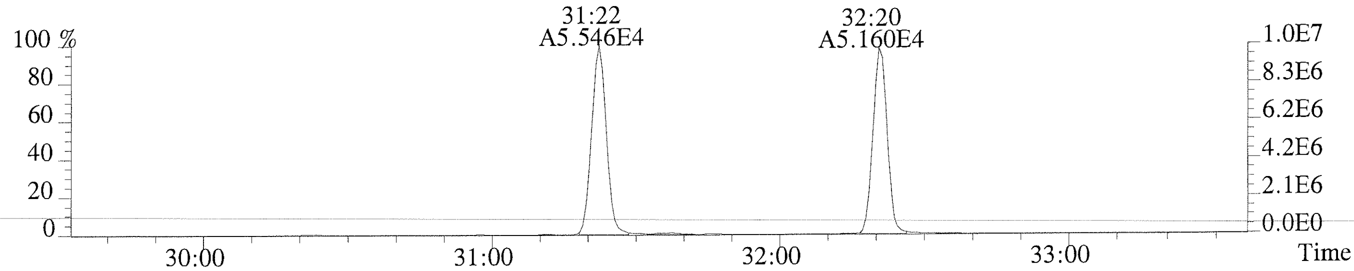
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



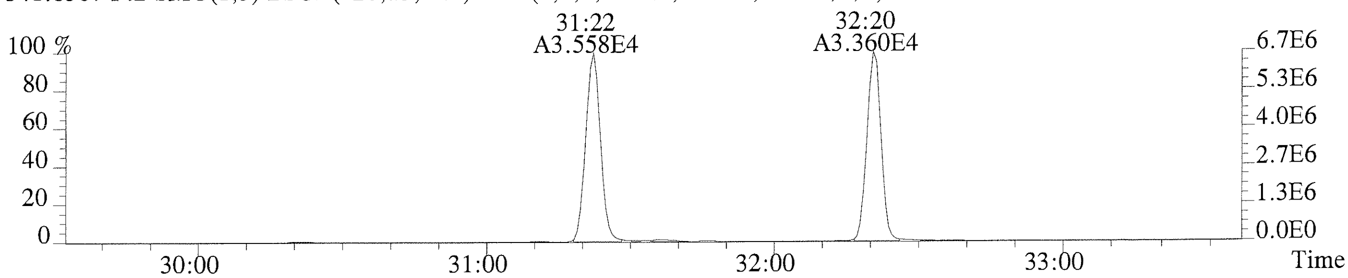
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



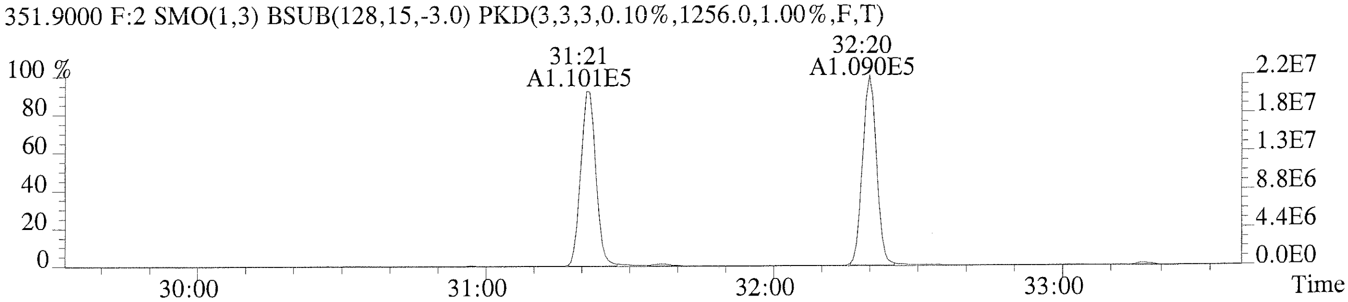
File:P231750 #1-370 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



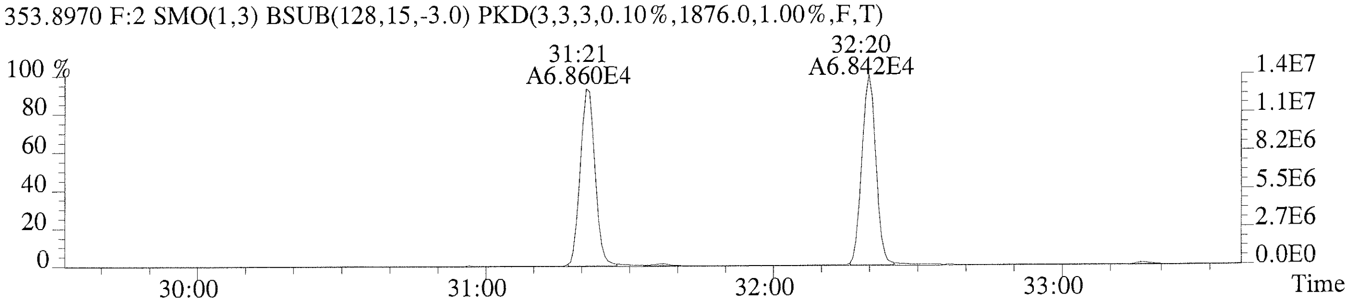
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



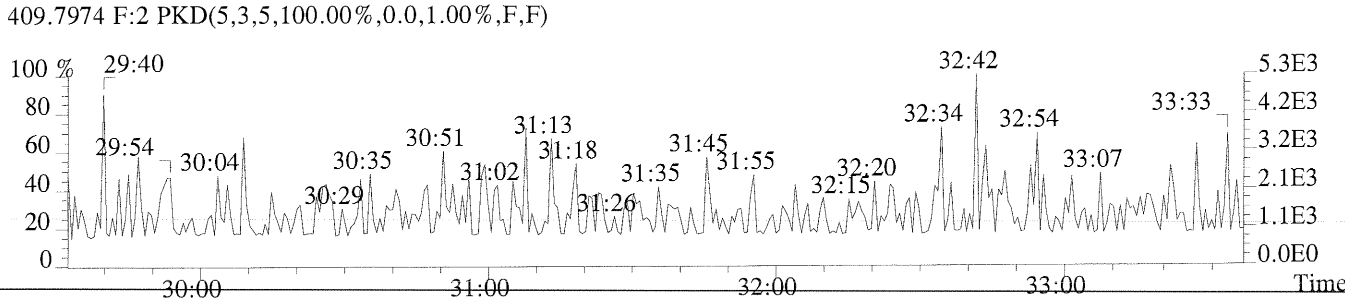
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



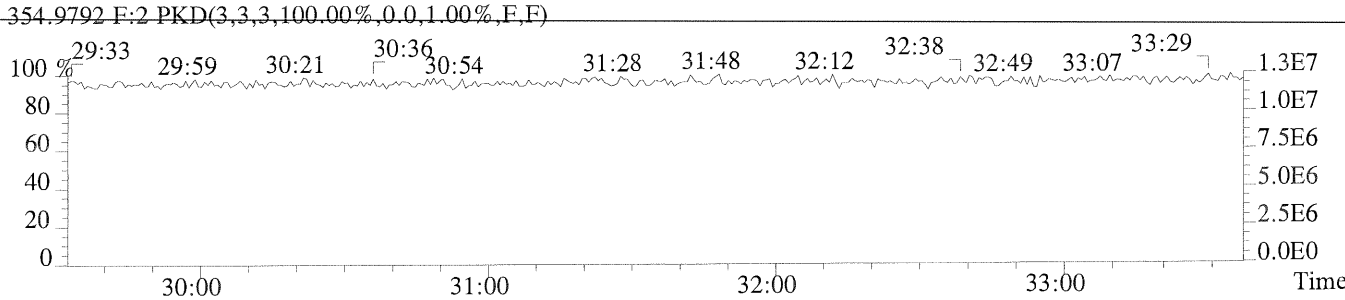
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

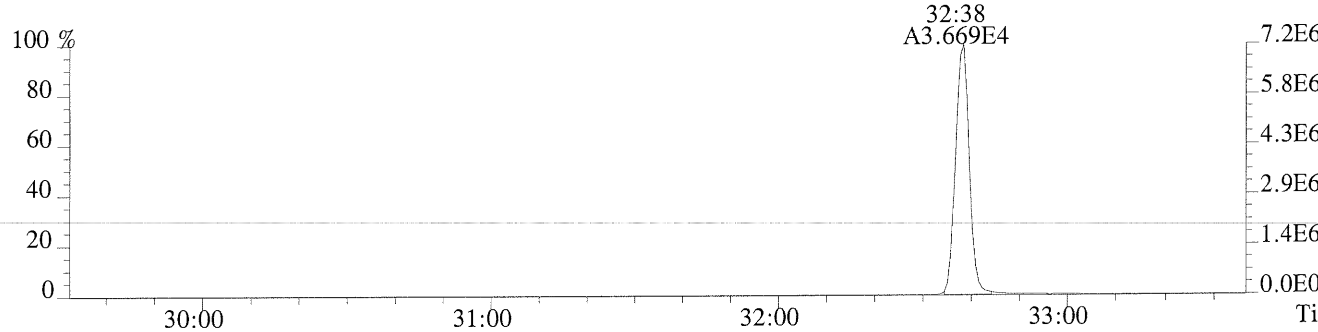


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

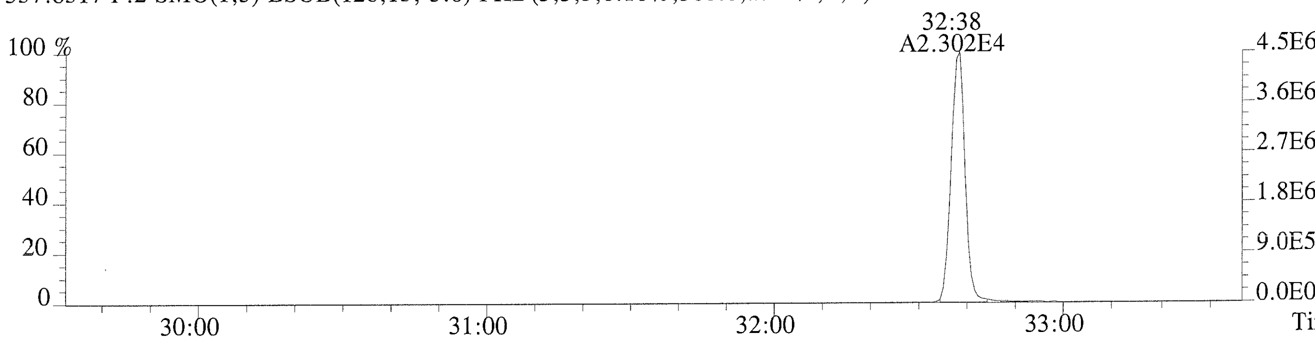


File:P231750 #1-370 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

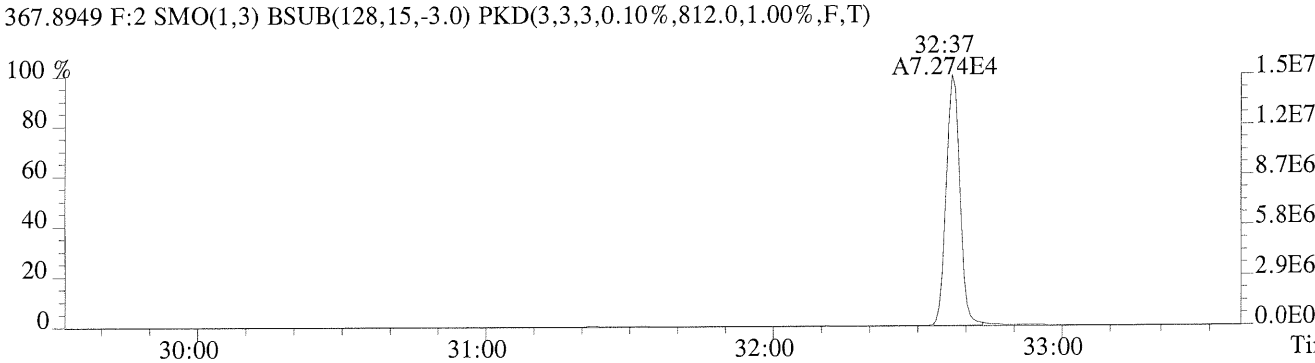
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



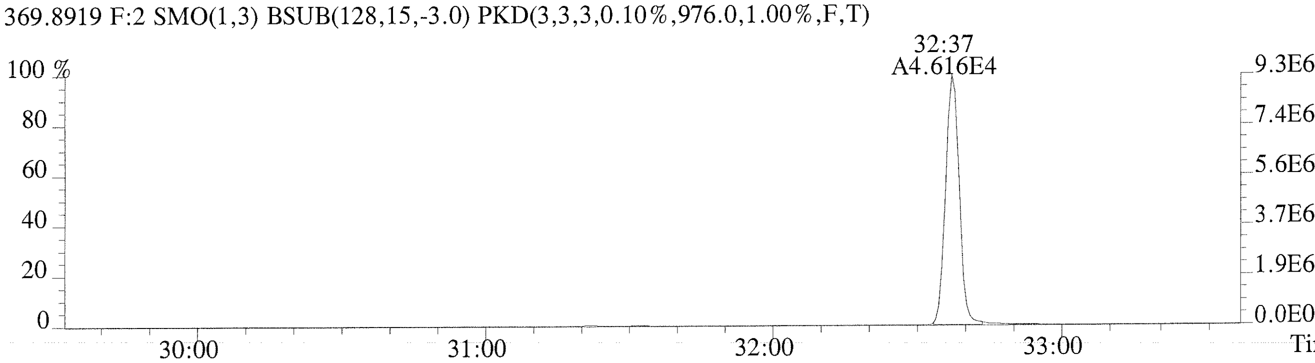
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



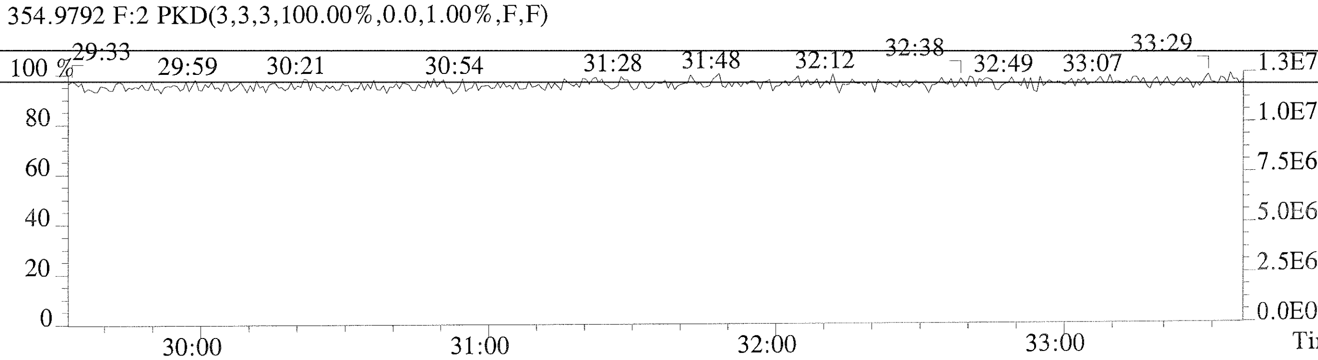
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



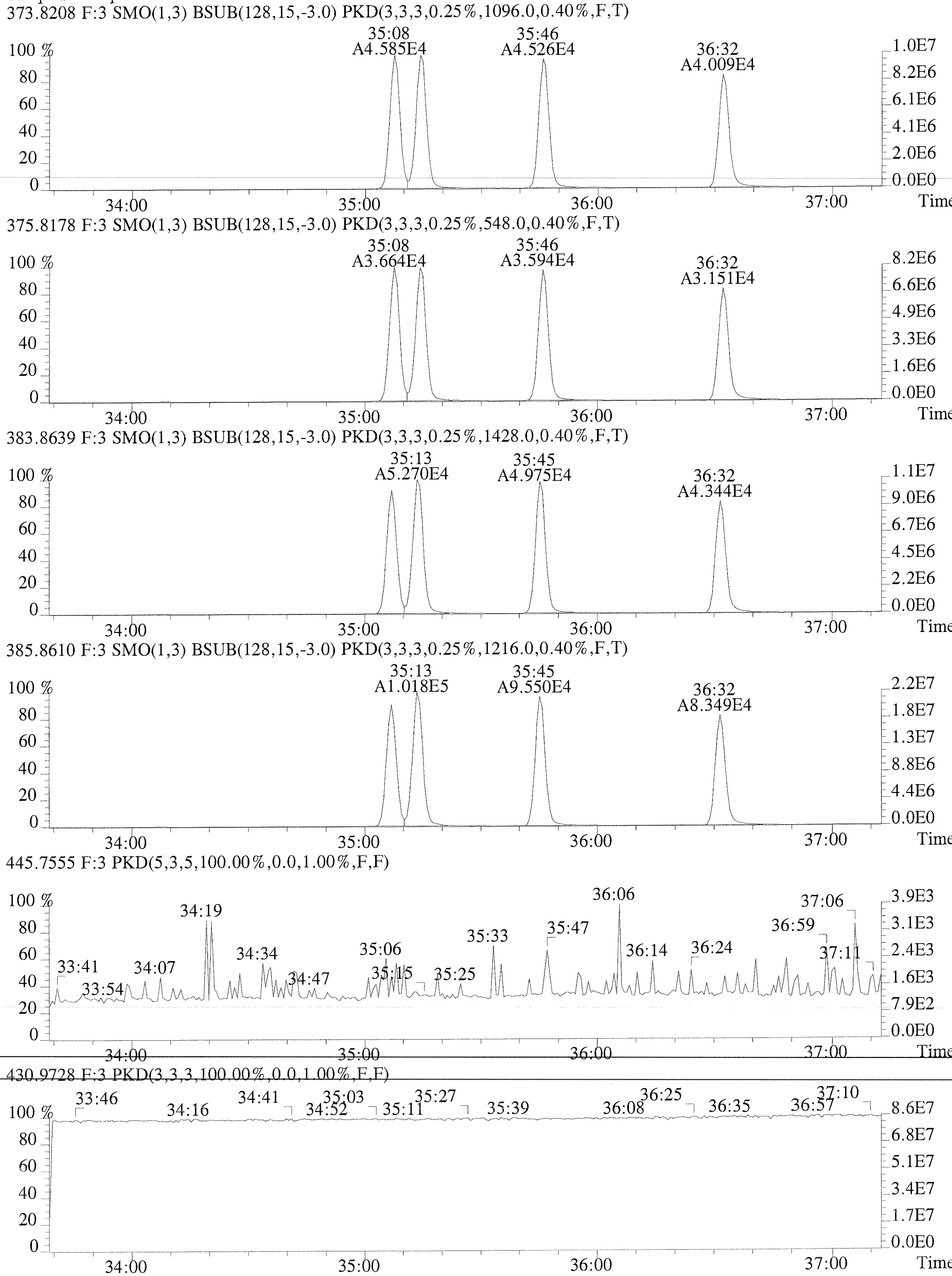
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



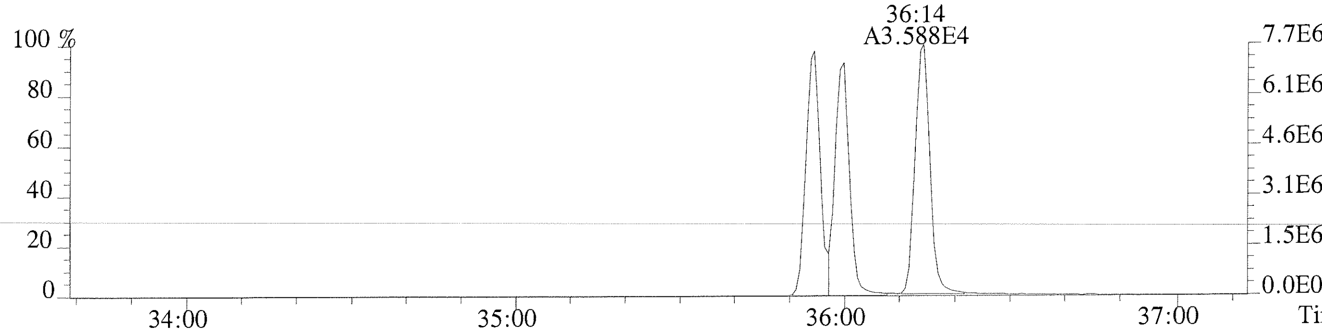
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



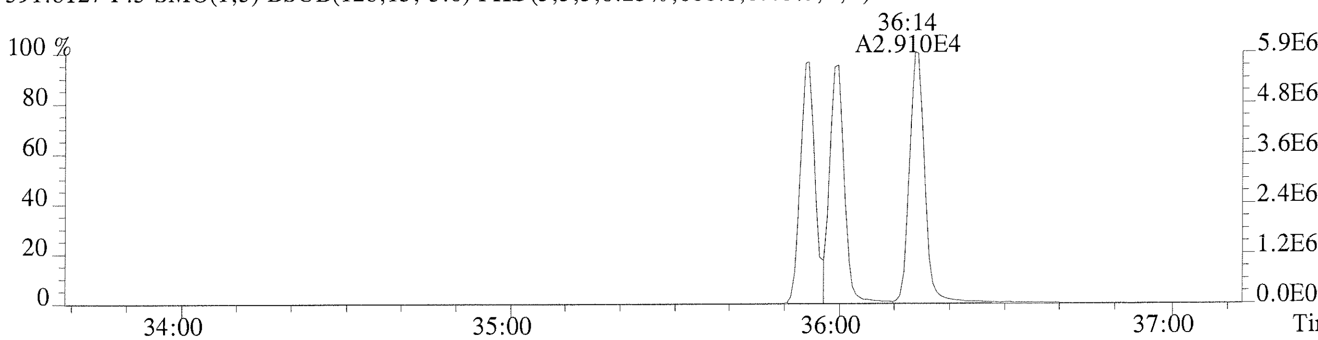
File:P231750 #1-324 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



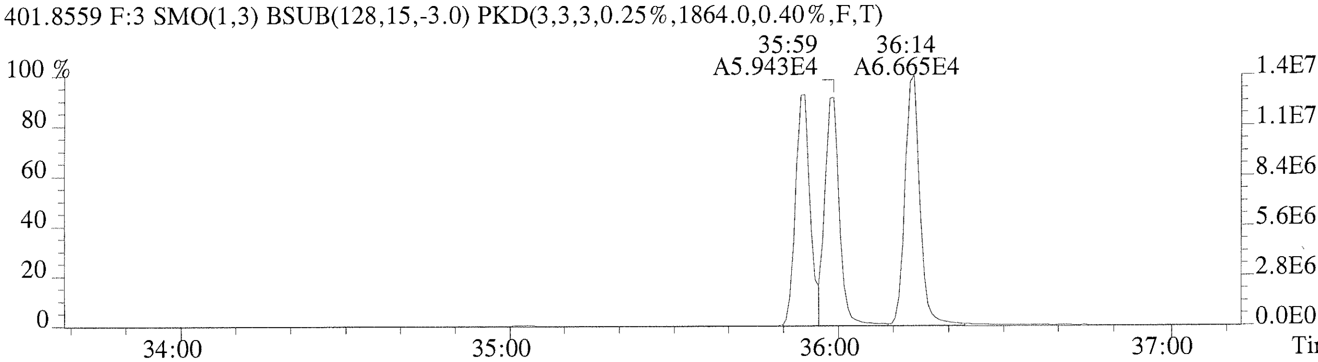
File:P231750 #1-324 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



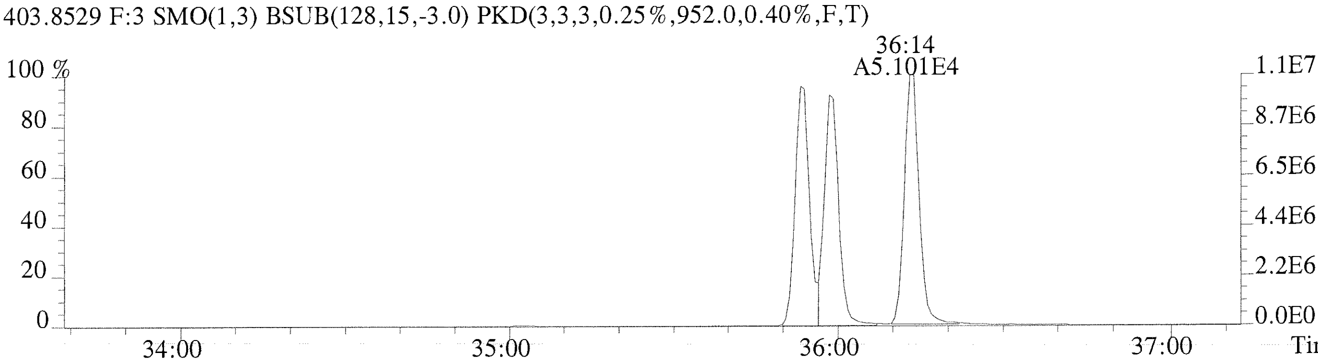
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



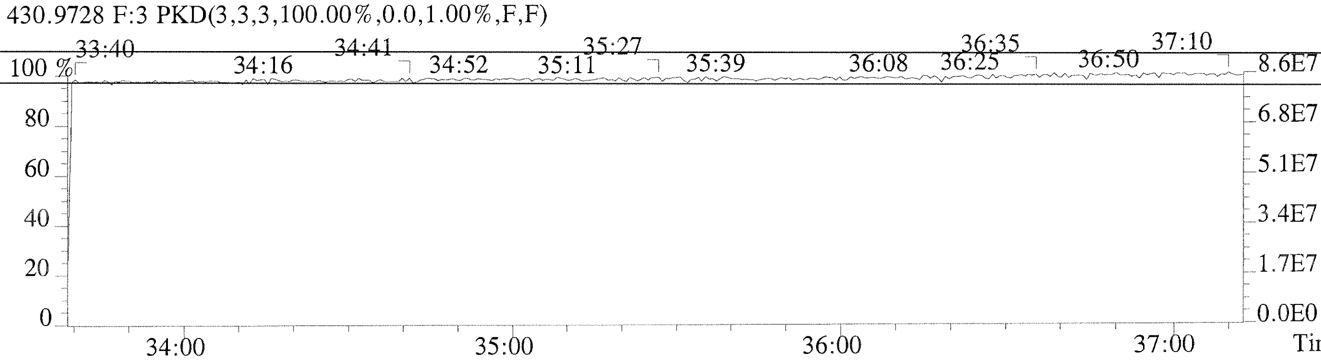
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)

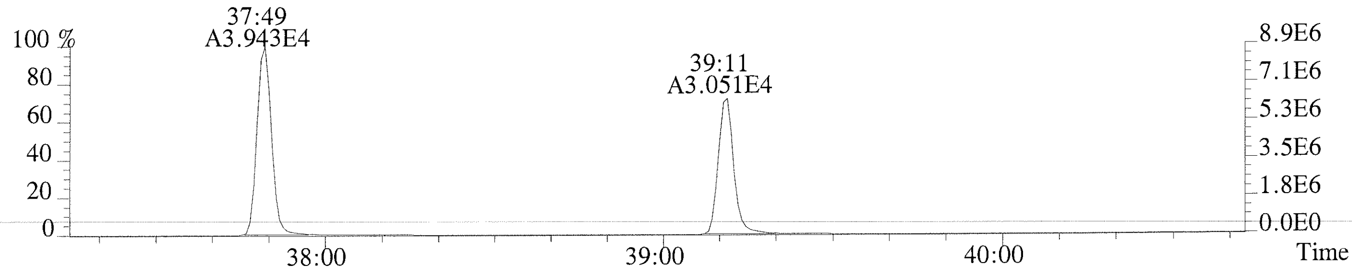


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

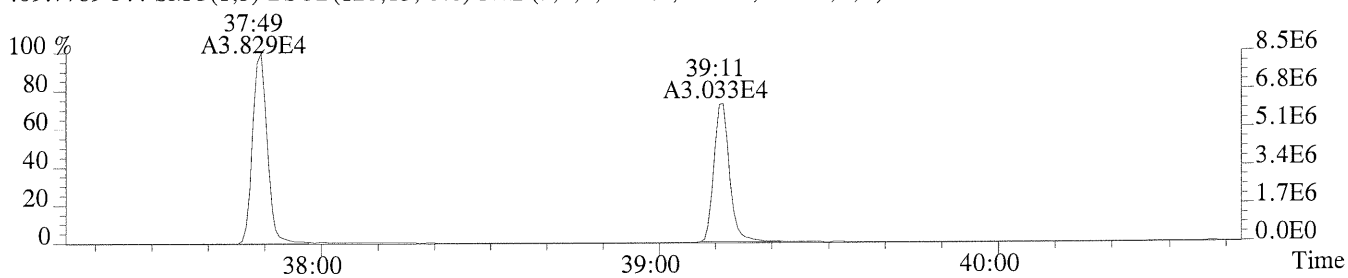


File:P231750 #1-315 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

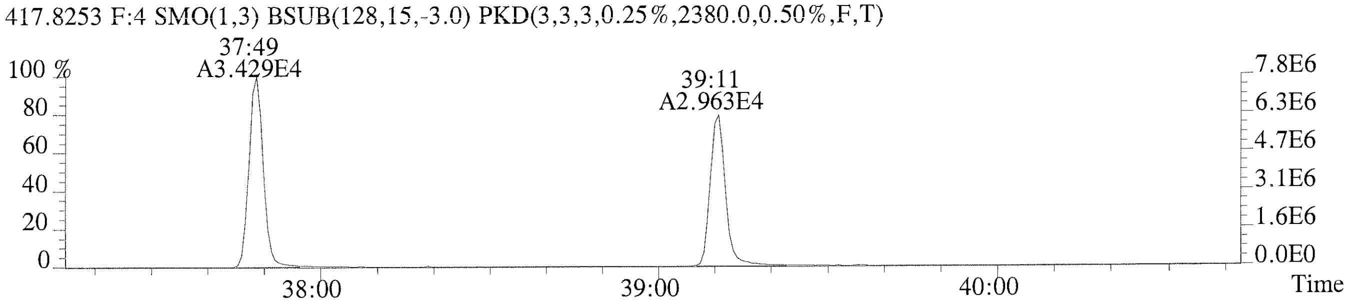
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3648.0,0.50%,F,T)



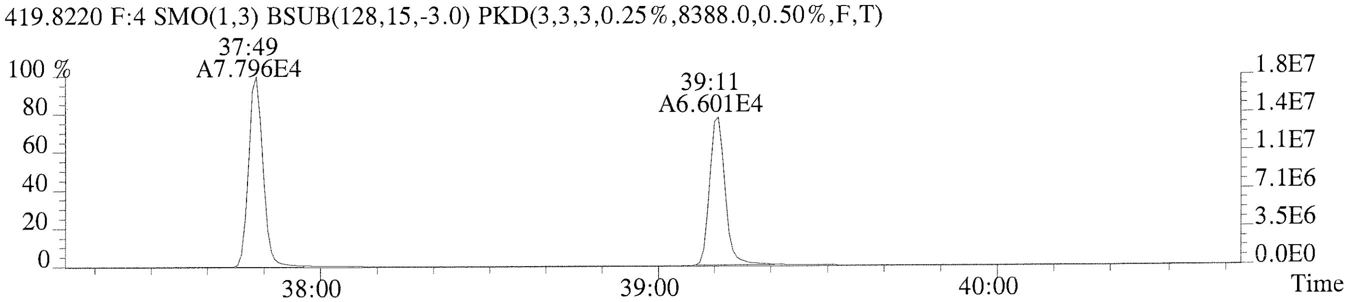
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3968.0,0.50%,F,T)



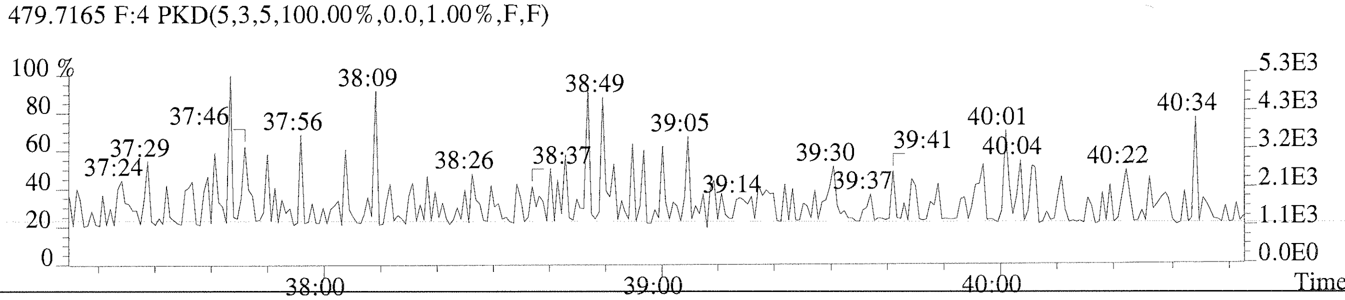
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.50%,F,T)



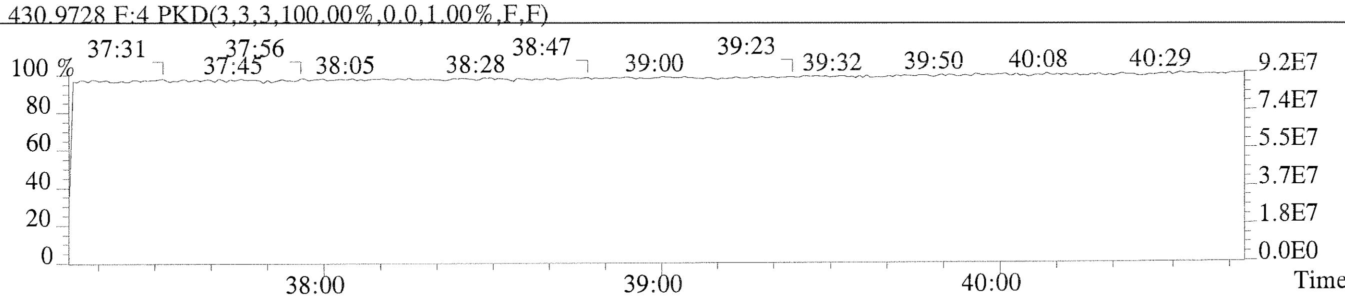
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8388.0,0.50%,F,T)



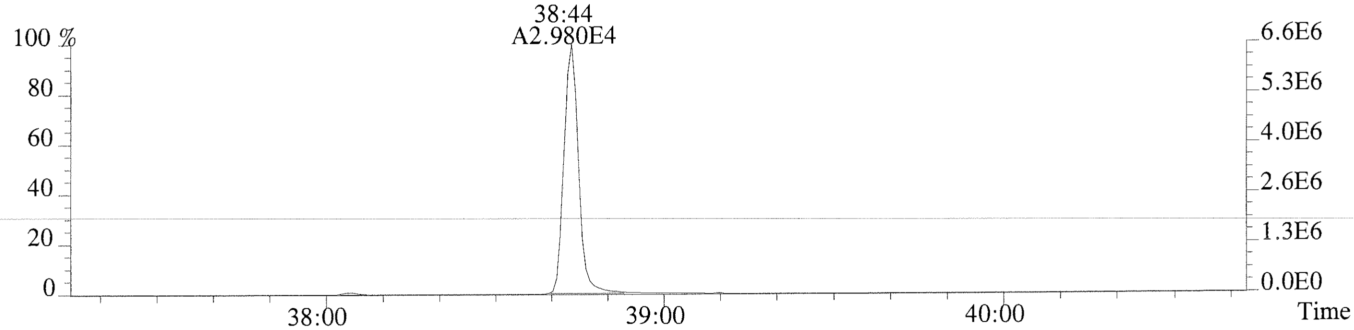
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



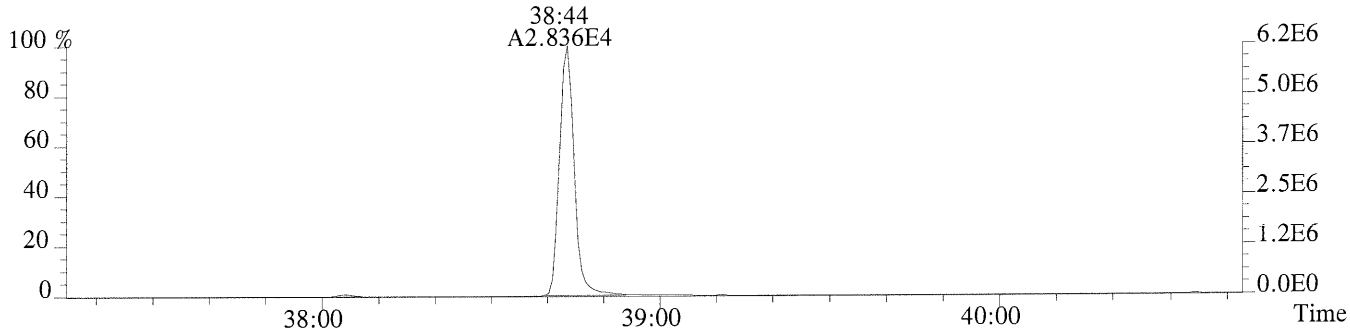
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



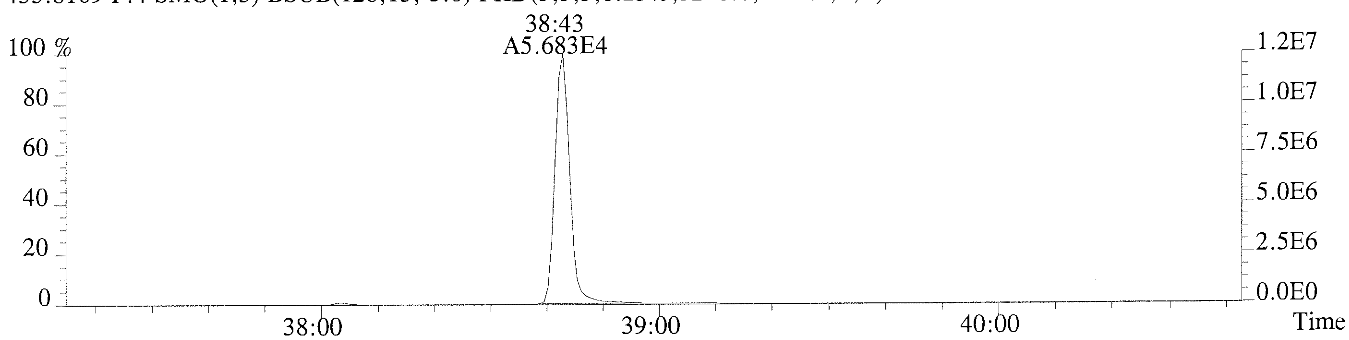
File:P231750 #1-315 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



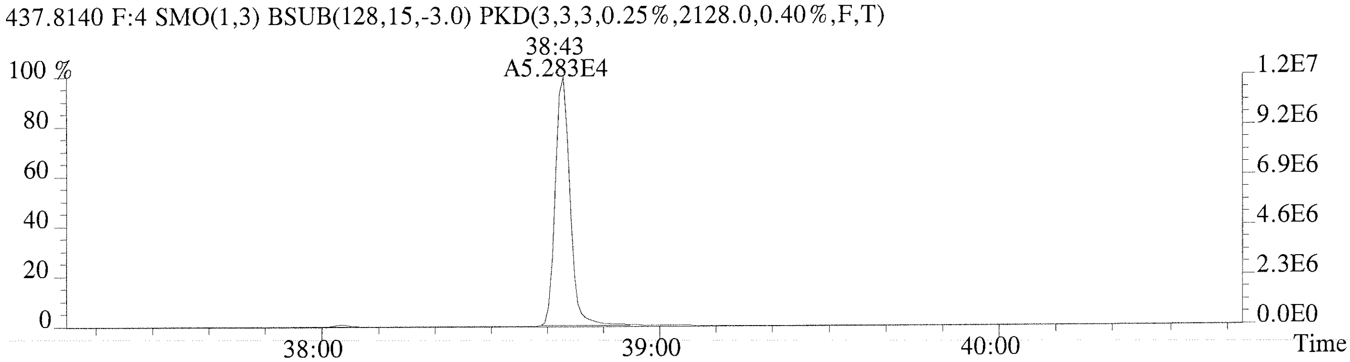
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



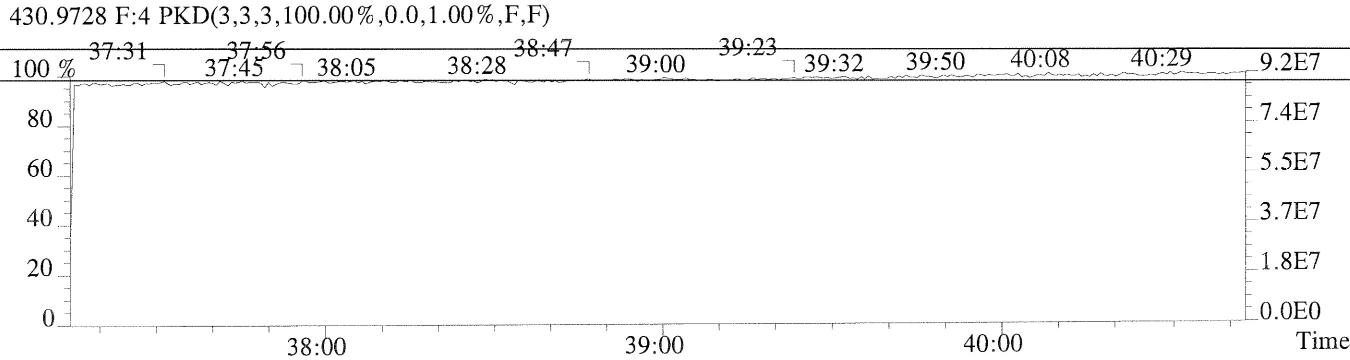
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3248.0,0.40%,F,T)



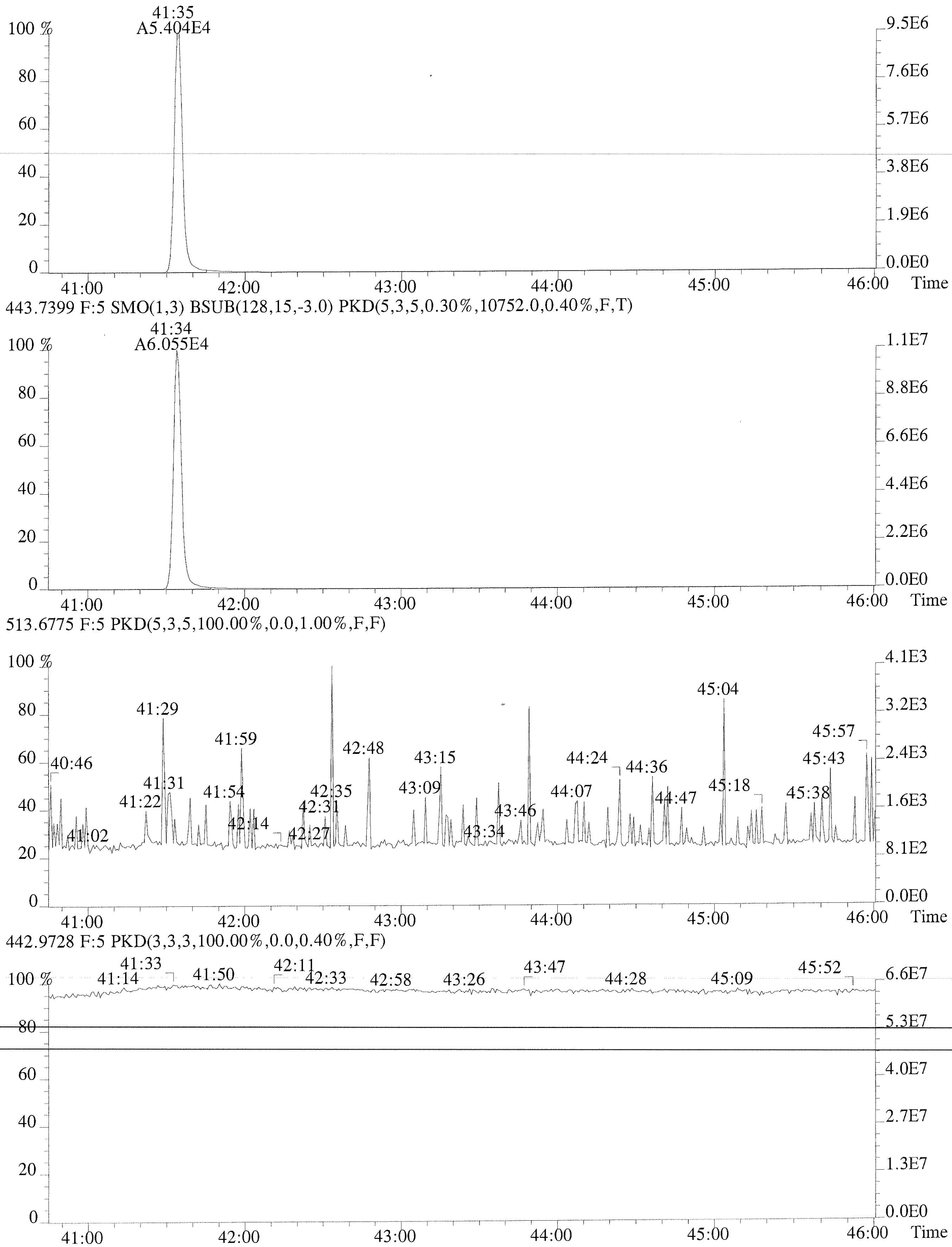
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.40%,F,T)



430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

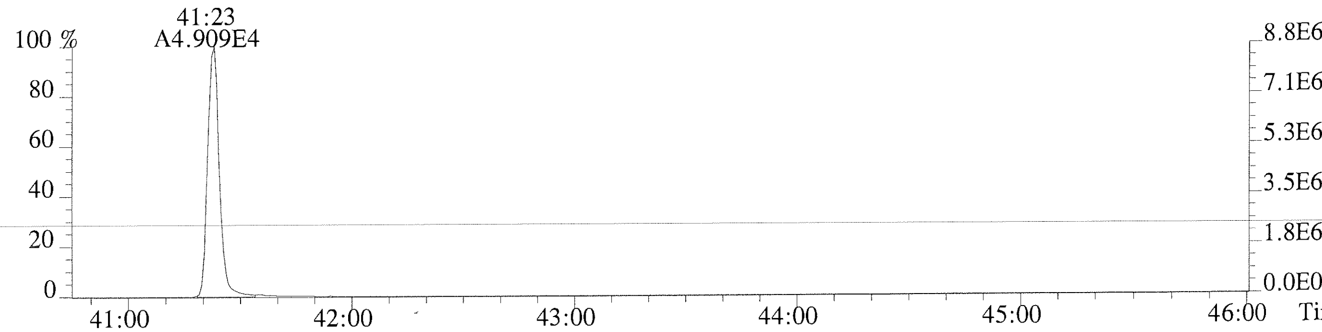


File:P231750 #1-484 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5080.0,0.40%,F,T)

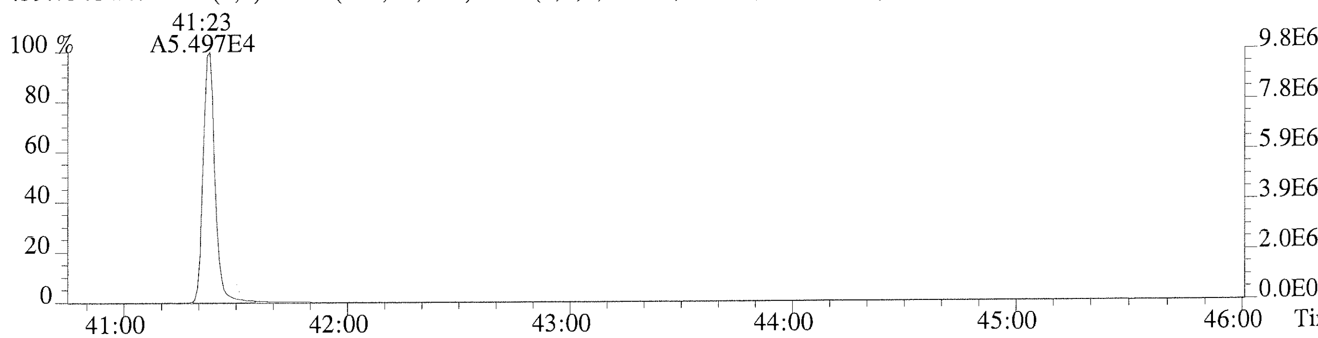


File:P231750 #1-484 Acq: 3-OCT-2014 22:39:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

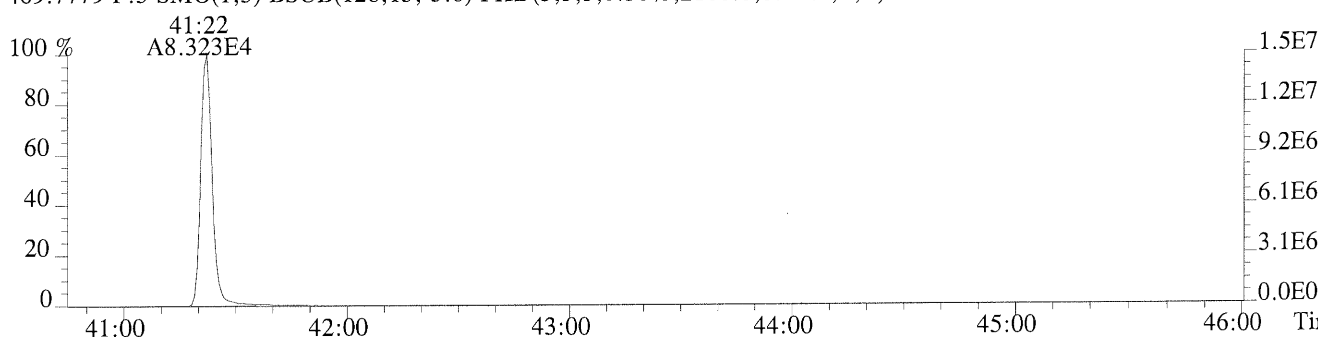
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5468.0,0.40%,F,T)



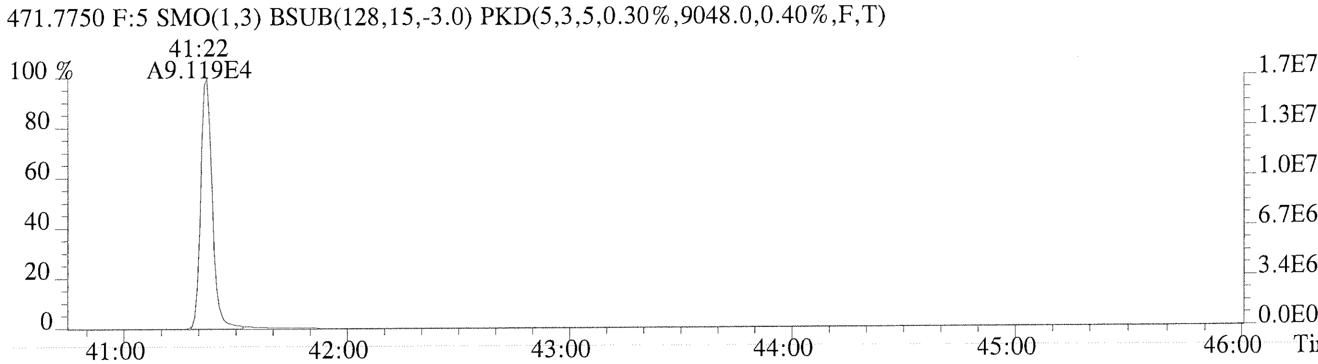
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2668.0,0.40%,F,T)



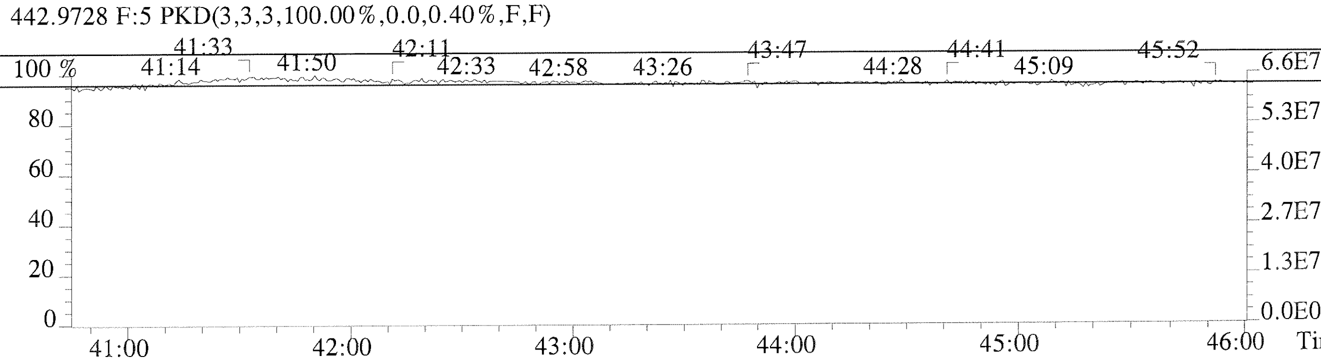
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9048.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P231761 Analysis Date: 4-OCT-14 Time: 07:25:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	51	39 - 65	1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	1.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	4.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	51	41 - 61	1.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.8
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.8	8.4 - 12.0	-2.3
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	1.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	50	41 - 61	-0.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	51	45 - 56	1.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	50	44 - 57	0.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	51	45 - 56	1.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	44 - 57	1.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	2.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	2.7
OCDF	M+2/M+4	0.90	0.76-1.02	109	63 - 159	9.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04   GC Column ID: DB-5MSUI

VER Data Filename: P231761   Analysis Date: 4-OCT-14   Time: 07:25:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	97	82 - 121	-3.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	76	62 - 160	-24.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 117	-0.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	98	85 - 118	-2.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	106	72 - 138	5.8
13C-OCDD	M+2/M+4	0.91	0.76-1.02	227	96 - 415	13.3
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	97	71 - 140	-2.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	77	76 - 130	-23.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	77	77 - 130	-22.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	76 - 131	1.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	100	70 - 143	0.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	110	74 - 135	10.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	3.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	120	77 - 129	20.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.3	7.8 - 12.7	-6.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #17 Filename P231761 Samp: 1 Inj: 1 Acquired: 4-OCT-14 07:25:04
Processed: 7-OCT-14 08:37:37 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:47	1.134e+04	1.455e+04	0.78	yes	no	0.986
2	Unk	1,2,3,7,8-PeCDF	31:22	8.552e+04	5.505e+04	1.55	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:21	8.057e+04	5.176e+04	1.56	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:08	7.068e+04	5.610e+04	1.26	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:15	7.315e+04	5.873e+04	1.25	yes	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:47	6.844e+04	5.564e+04	1.23	yes	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:33	5.980e+04	4.770e+04	1.25	yes	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	5.774e+04	5.661e+04	1.02	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:11	4.550e+04	4.418e+04	1.03	yes	no	1.274
10	Unk	OCDF	41:35	7.155e+04	7.970e+04	0.90	yes	no	1.195
11	Unk	2,3,7,8-TCDD	27:40	8.361e+03	1.075e+04	0.78	yes	no	1.061
12	Unk	1,2,3,7,8-PeCDD	32:38	5.775e+04	3.598e+04	1.60	yes	no	0.992
13	Unk	1,2,3,4,7,8-HxCDD	35:54	5.160e+04	4.069e+04	1.27	yes	no	1.118
14	Unk	1,2,3,6,7,8-HxCDD	36:00	5.112e+04	4.066e+04	1.26	yes	no	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:14	5.518e+04	4.278e+04	1.29	yes	no	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:44	4.317e+04	4.125e+04	1.05	yes	no	1.053
17	Unk	OCDD	41:23	6.580e+04	7.306e+04	0.90	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	26:47	1.191e+05	1.497e+05	0.80	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:22	1.691e+05	1.067e+05	1.59	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:20	1.679e+05	1.063e+05	1.58	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:07	7.154e+04	1.388e+05	0.52	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:14	7.982e+04	1.518e+05	0.53	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:46	7.593e+04	1.449e+05	0.52	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:32	6.407e+04	1.237e+05	0.52	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:49	5.062e+04	1.155e+05	0.44	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:11	4.157e+04	9.552e+04	0.44	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:39	8.128e+04	1.030e+05	0.79	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:38	1.142e+05	7.188e+04	1.59	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	35:54	9.145e+04	7.192e+04	1.27	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	35:59	8.982e+04	7.145e+04	1.26	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:43	8.218e+04	7.690e+04	1.07	yes	no	0.850
32	IS	13C-OCDD	41:23	1.107e+05	1.214e+05	0.91	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	27:00	8.387e+04	1.058e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:14	9.891e+04	7.800e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:40	1.944e+04				no	1.099

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #17 Filename P231761 Samp: 1 Inj: 1 Acquired: 4-OCT-14 07:25:04
Processed: 7-OCT-14 08:37:371 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.75e+06	1.60e+02	1.1e+04	2.25e+06	2.58e+03	8.7e+02
2	1,2,3,7,8-PeCDF	1.60e+07	4.16e+02	3.8e+04	1.04e+07	1.86e+03	5.6e+03
3	2,3,4,7,8-PeCDF	1.59e+07	4.16e+02	3.8e+04	1.01e+07	1.86e+03	5.4e+03
4	1,2,3,4,7,8-HxCDF	1.51e+07	4.36e+02	3.5e+04	1.20e+07	6.88e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	1.58e+07	4.36e+02	3.6e+04	1.26e+07	6.88e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	1.49e+07	4.36e+02	3.4e+04	1.20e+07	6.88e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	1.28e+07	4.36e+02	2.9e+04	1.01e+07	6.88e+02	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	1.30e+07	3.76e+03	3.5e+03	1.27e+07	8.63e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	9.42e+06	3.76e+03	2.5e+03	9.14e+06	8.63e+03	1.1e+03
10	OCDF	1.31e+07	4.32e+03	3.0e+03	1.43e+07	5.86e+03	2.4e+03
11	2,3,7,8-TCDD	1.44e+06	8.32e+02	1.7e+03	1.83e+06	6.56e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.16e+07	8.00e+02	1.5e+04	7.28e+06	9.60e+01	7.6e+04
13	1,2,3,4,7,8-HxCDD	1.18e+07	2.20e+02	5.4e+04	9.27e+06	7.08e+02	1.3e+04
14	1,2,3,6,7,8-HxCDD	1.13e+07	2.20e+02	5.1e+04	9.07e+06	7.08e+02	1.3e+04
15	1,2,3,7,8,9-HxCDD	1.20e+07	2.20e+02	5.5e+04	9.39e+06	7.08e+02	1.3e+04
16	1,2,3,4,6,7,8-HpCDD	9.23e+06	7.80e+02	1.2e+04	8.86e+06	6.00e+02	1.5e+04
17	OCDD	1.21e+07	1.62e+03	7.4e+03	1.35e+07	6.84e+03	2.0e+03
18	13C-2,3,7,8-TCDF	1.94e+07	1.50e+03	1.3e+04	2.43e+07	1.34e+03	1.8e+04
19	13C-1,2,3,7,8-PeCDF	3.23e+07	8.48e+02	3.8e+04	2.03e+07	8.12e+02	2.5e+04
20	13C-2,3,4,7,8-PeCDF	3.36e+07	8.48e+02	4.0e+04	2.13e+07	8.12e+02	2.6e+04
21	13C-1,2,3,4,7,8-HxCDF	1.53e+07	1.53e+03	1.0e+04	2.99e+07	2.06e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	1.72e+07	1.53e+03	1.1e+04	3.24e+07	2.06e+03	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	1.65e+07	1.53e+03	1.1e+04	3.12e+07	2.06e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	1.53e+03	9.0e+03	2.66e+07	2.06e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.12e+07	5.04e+03	2.2e+03	2.58e+07	3.40e+03	7.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.75e+06	5.04e+03	1.7e+03	2.00e+07	3.40e+03	5.9e+03
27	13C-2,3,7,8-TCDD	1.44e+07	5.74e+03	2.5e+03	1.81e+07	2.64e+03	6.9e+03
28	13C-1,2,3,7,8-PeCDD	2.29e+07	9.64e+02	2.4e+04	1.43e+07	4.48e+02	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.11e+07	2.26e+03	9.3e+03	1.64e+07	7.64e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	1.99e+07	2.26e+03	8.8e+03	1.59e+07	7.64e+02	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.78e+07	2.14e+03	8.3e+03	1.68e+07	2.05e+03	8.2e+03
32	13C-OCDD	2.06e+07	8.28e+03	2.5e+03	2.27e+07	5.55e+03	4.1e+03
33	13C-1,2,3,4-TCDD	1.38e+07	5.74e+03	2.4e+03	1.73e+07	2.64e+03	6.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.21e+07	2.26e+03	9.8e+03	1.73e+07	7.64e+02	2.3e+04
35	37Cl-2,3,7,8-TCDD	3.35e+06	5.56e+02	6.0e+03			

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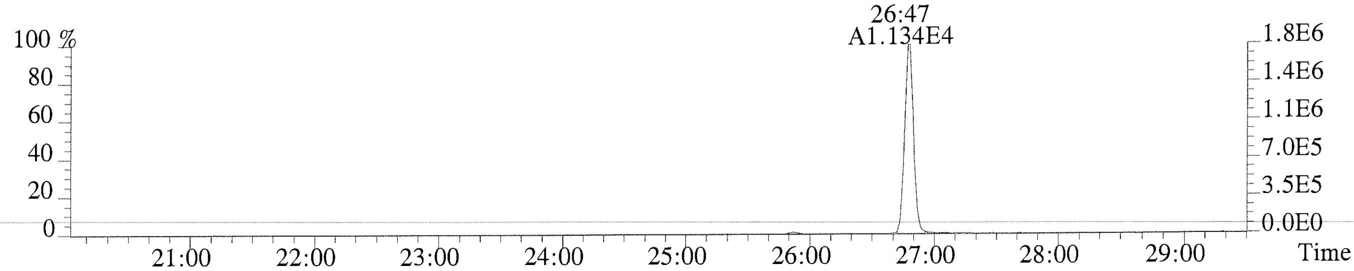
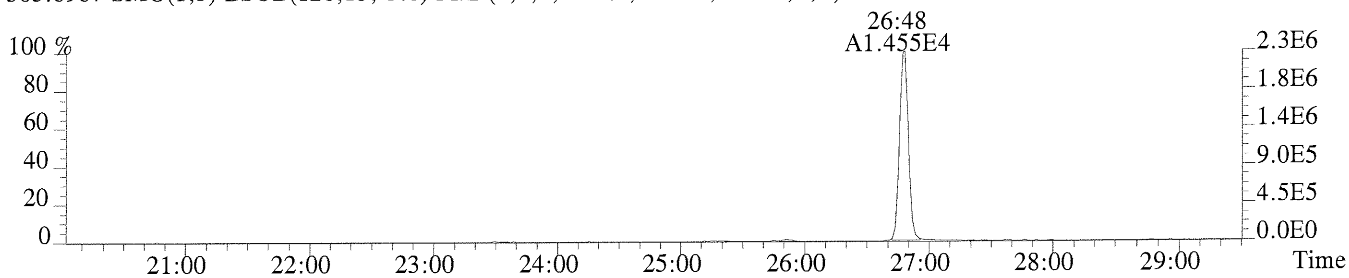
File:P231761 #1-730 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

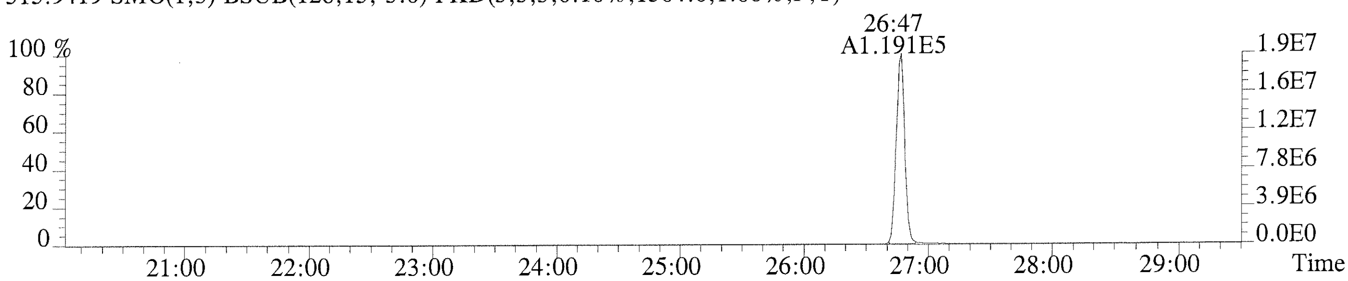
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



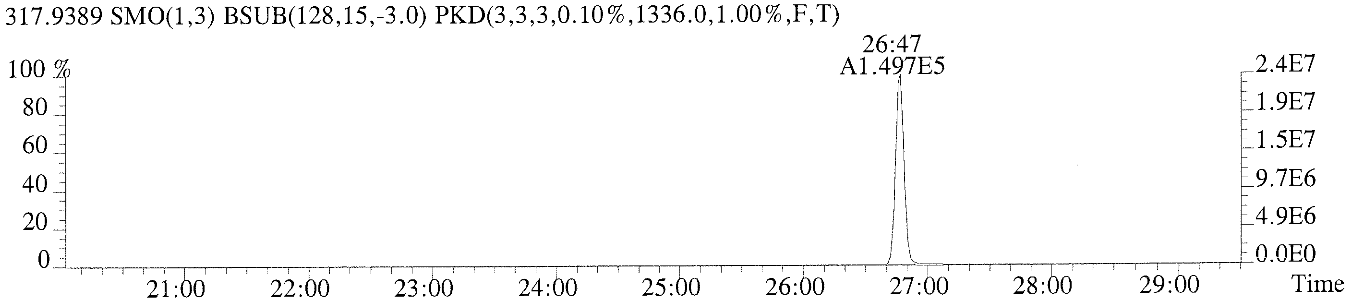
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



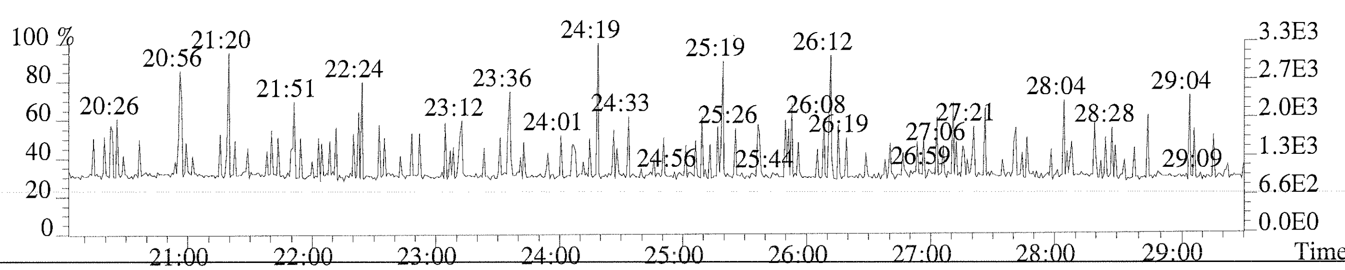
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



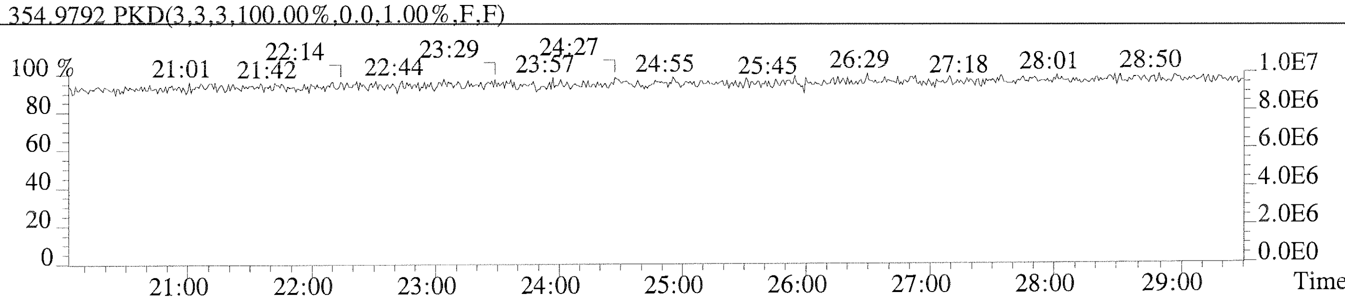
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

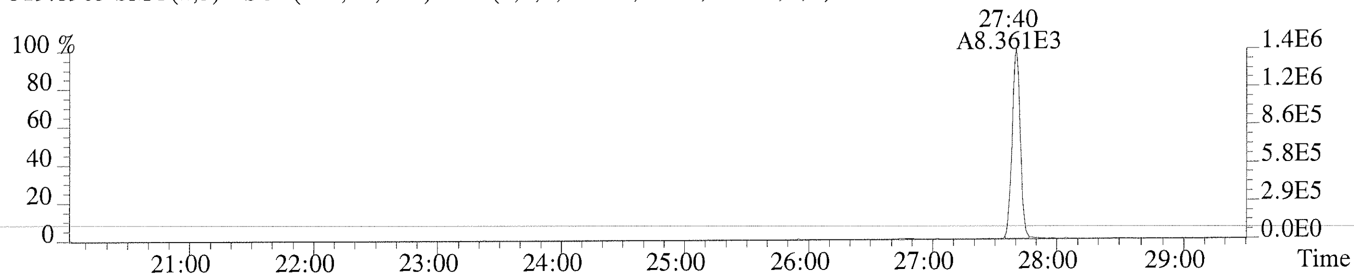


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

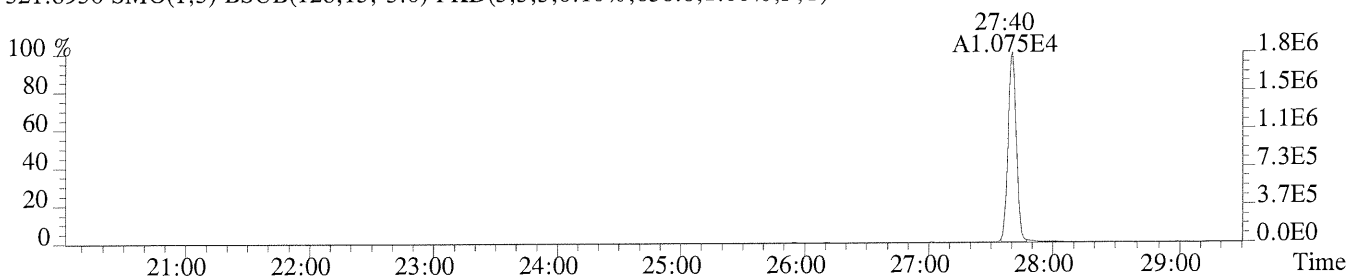


File:P231761 #1-730 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

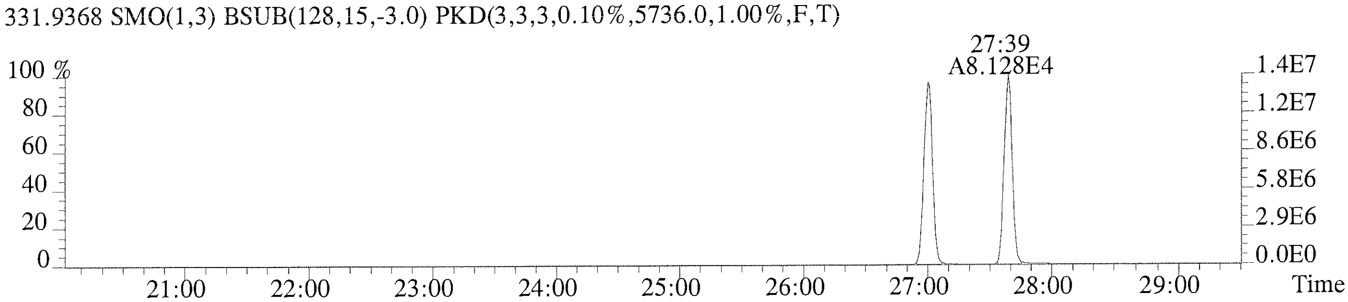
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



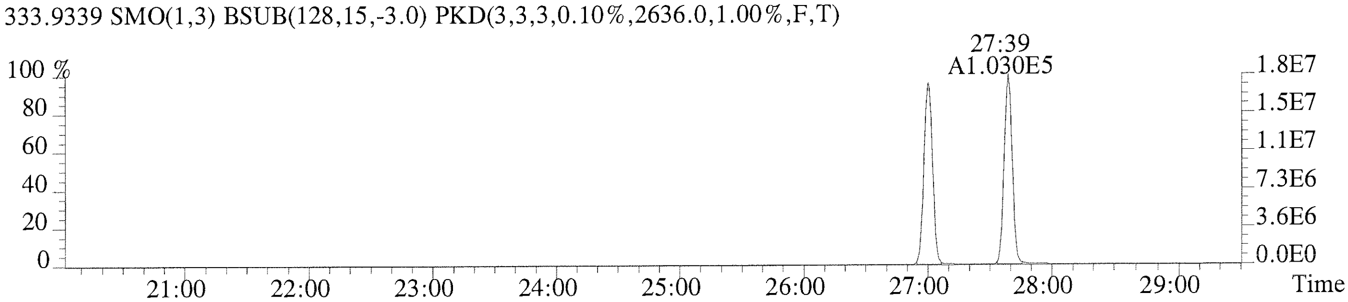
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



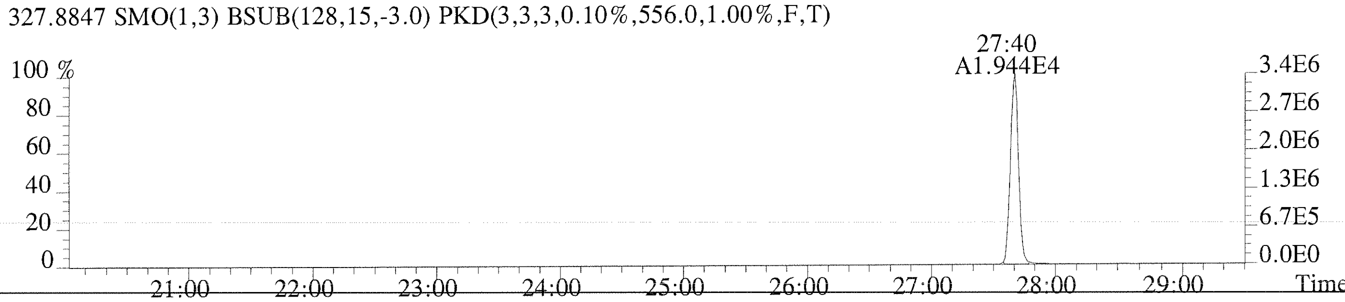
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5736.0,1.00%,F,T)



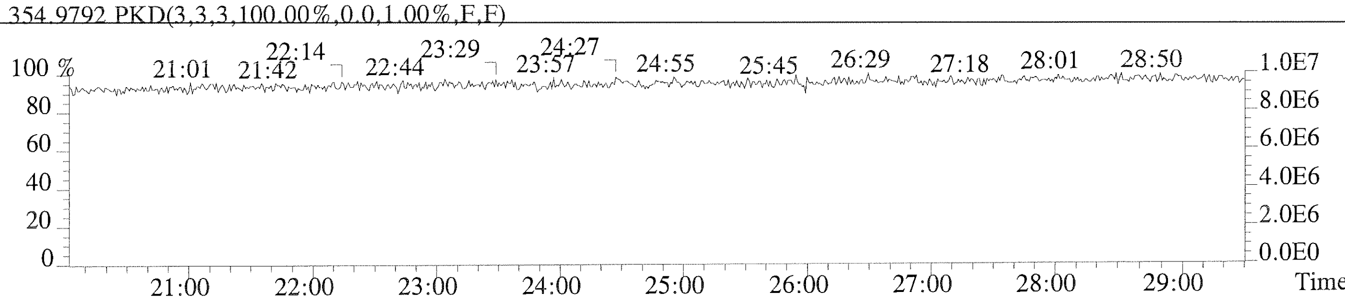
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

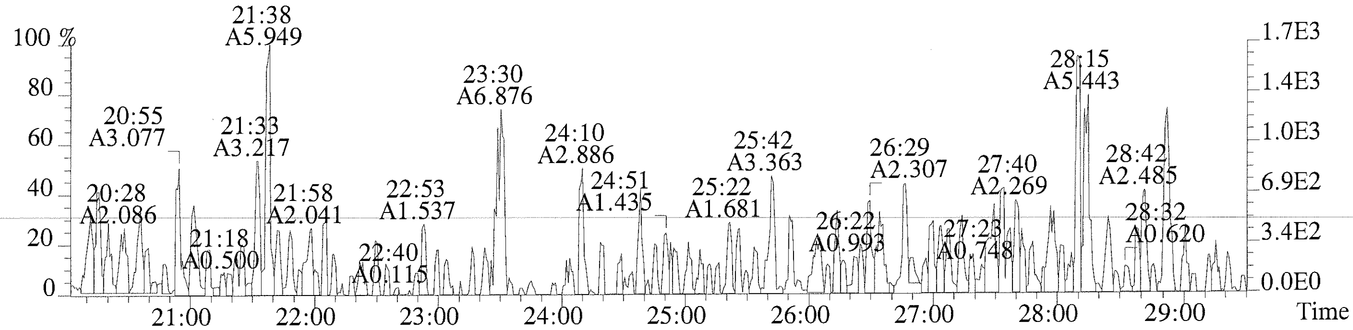


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

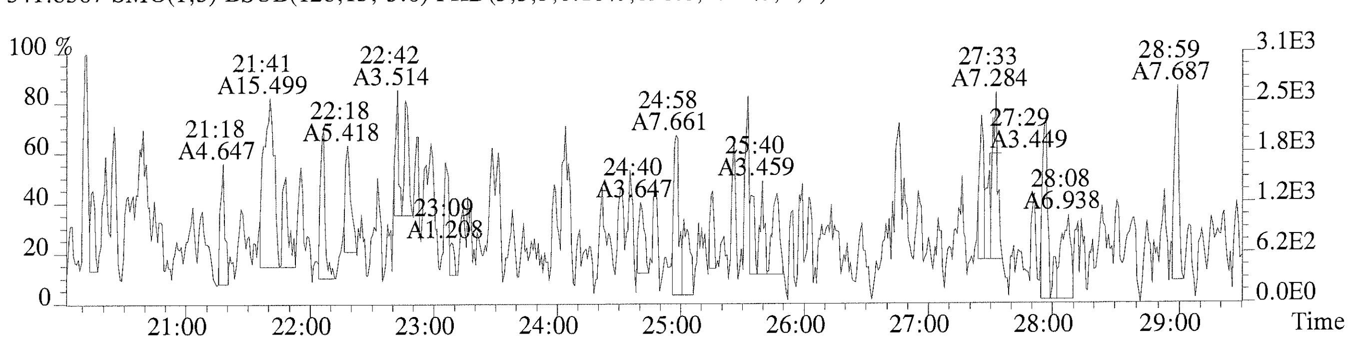


File:P231761 #1-730 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

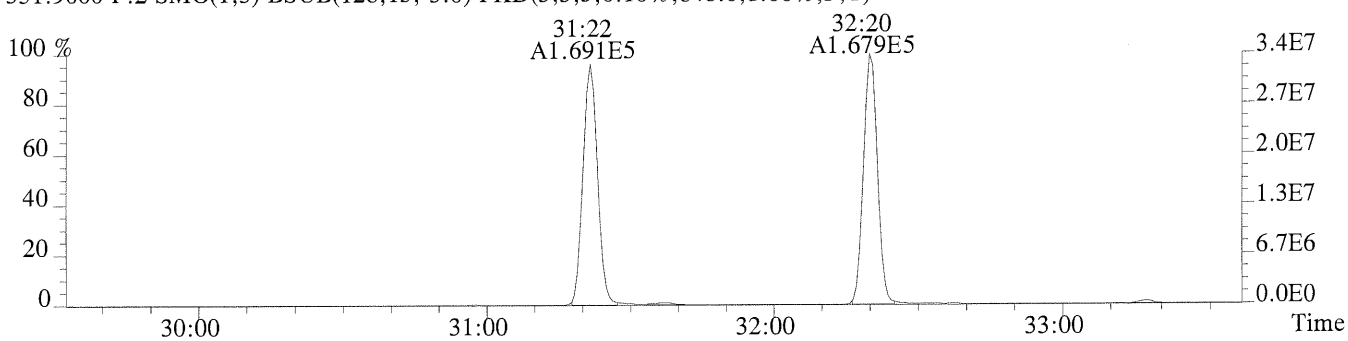
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,76.0,1.00%,F,T)



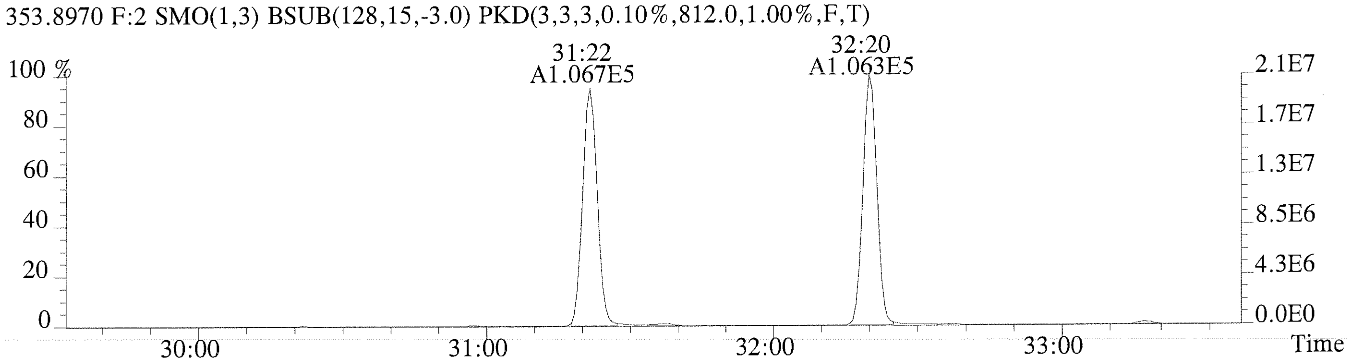
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



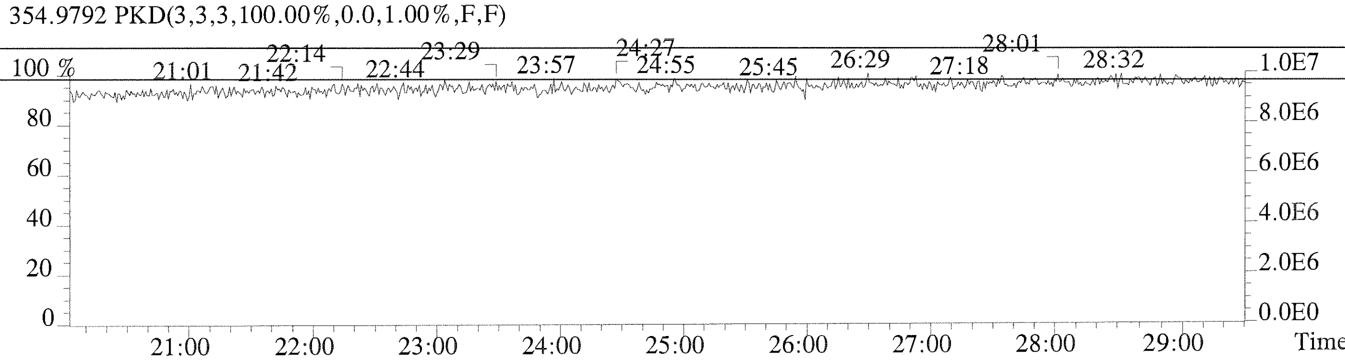
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)

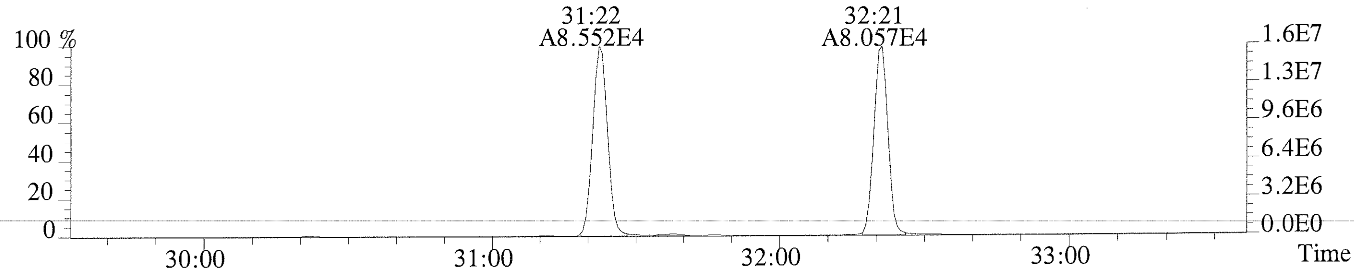


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

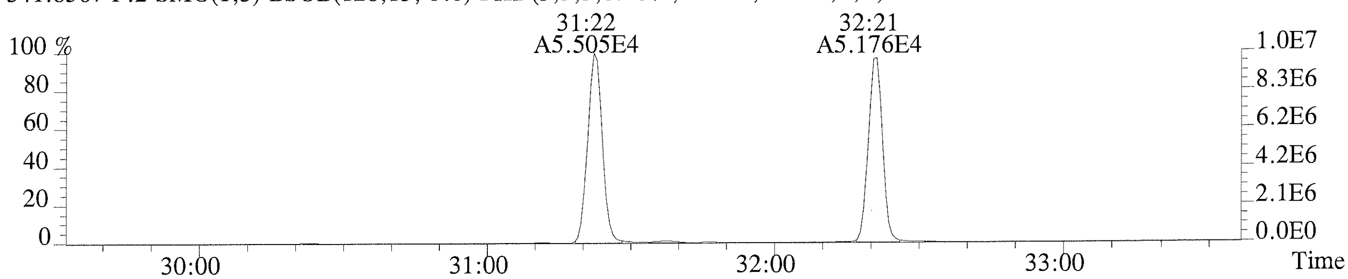


File:P231761 #1-370 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

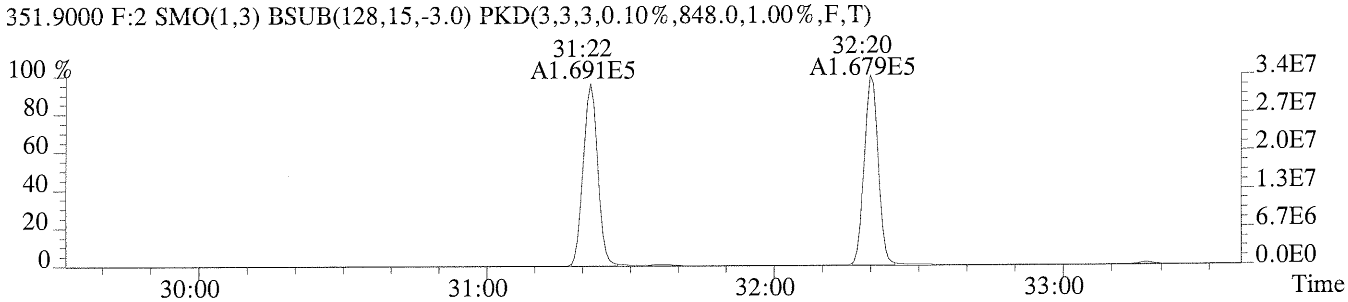
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



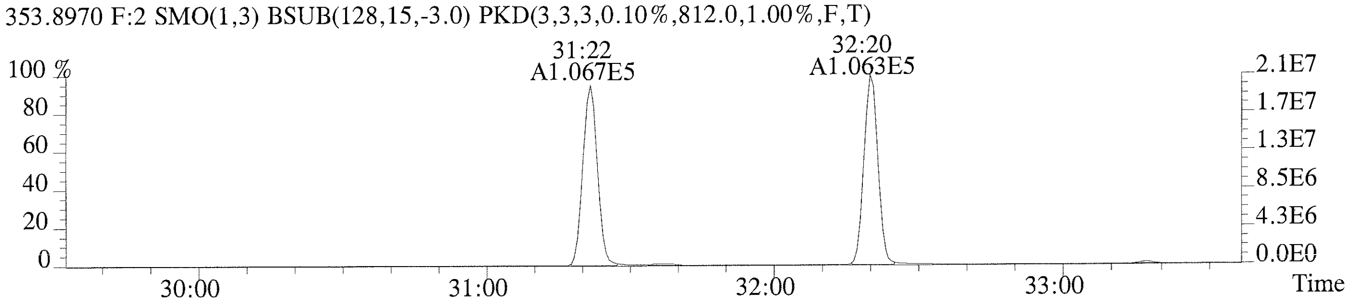
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



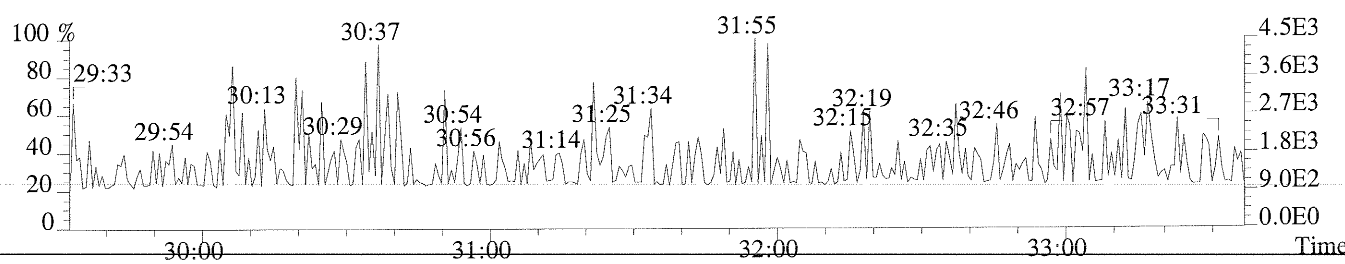
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



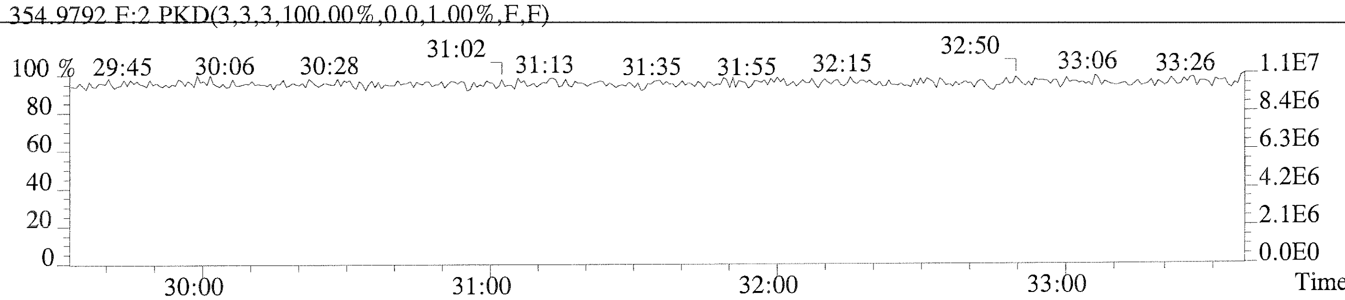
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

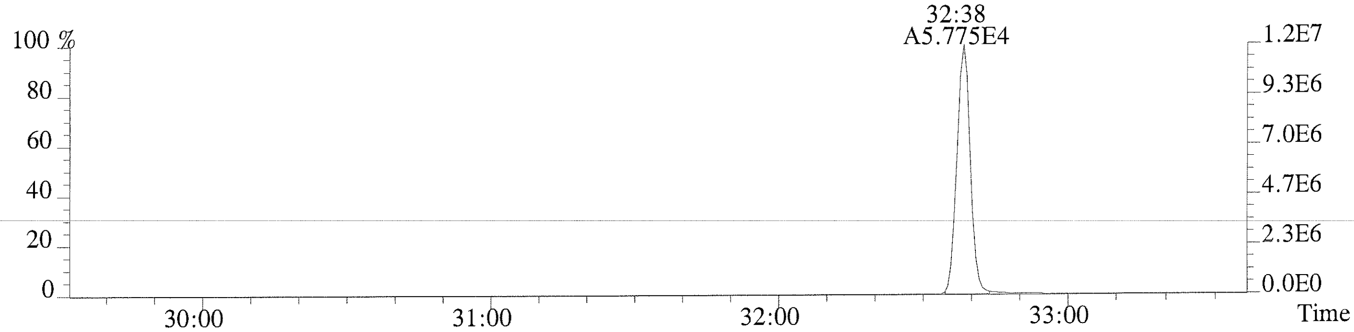


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

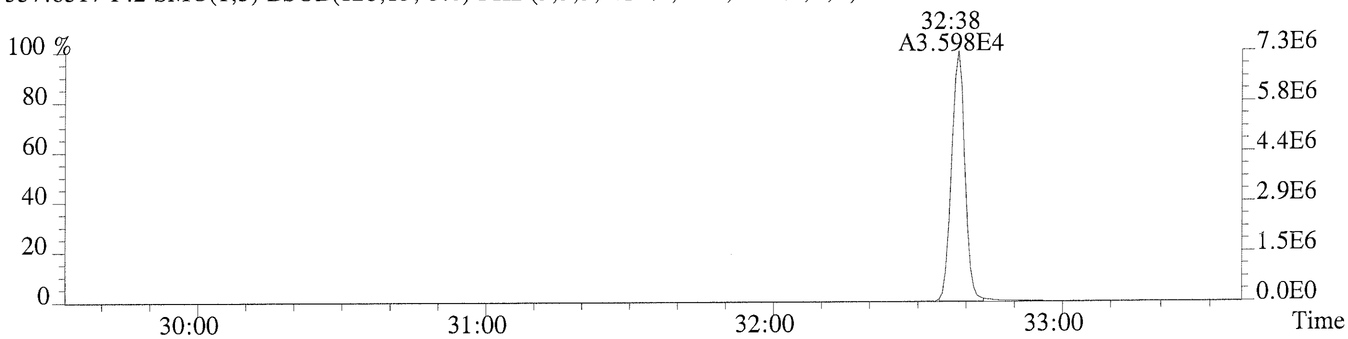


File:P231761 #1-370 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

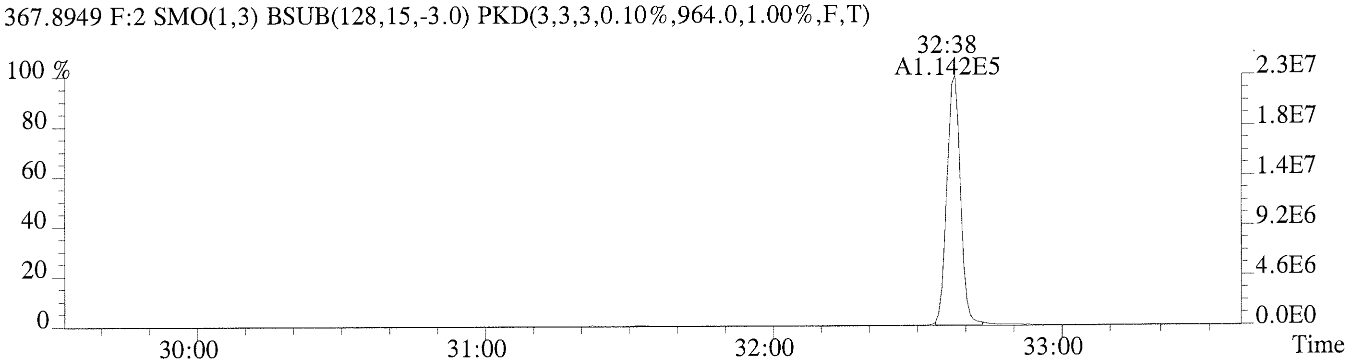
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



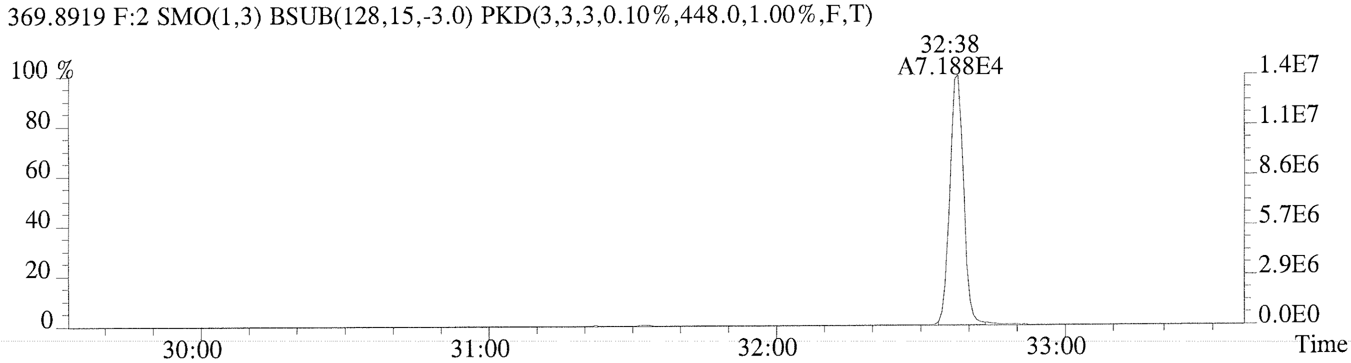
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



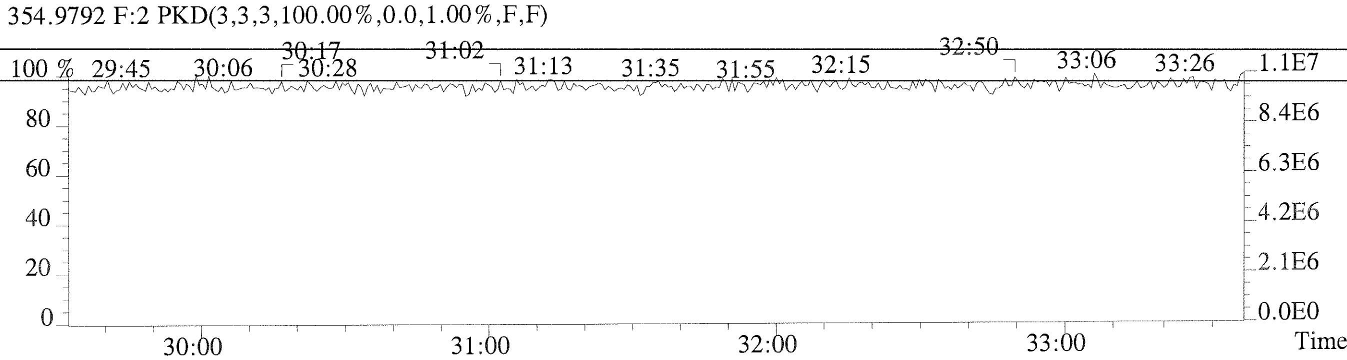
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



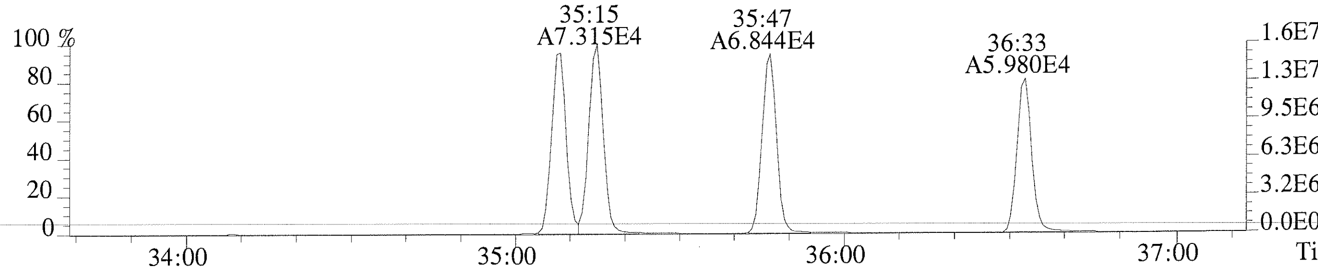
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



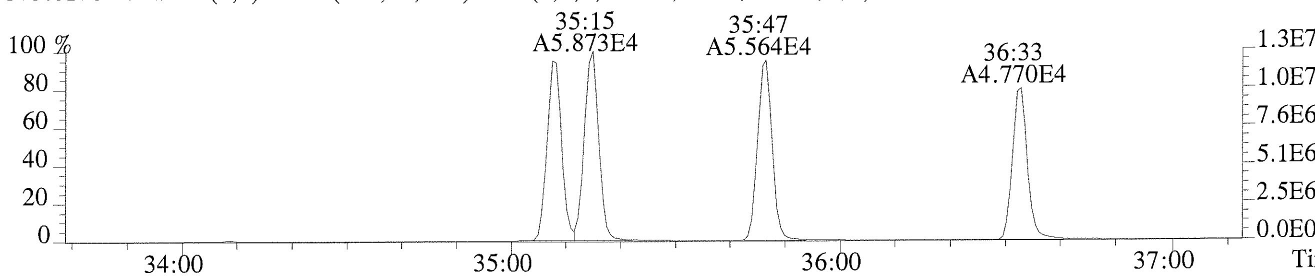
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



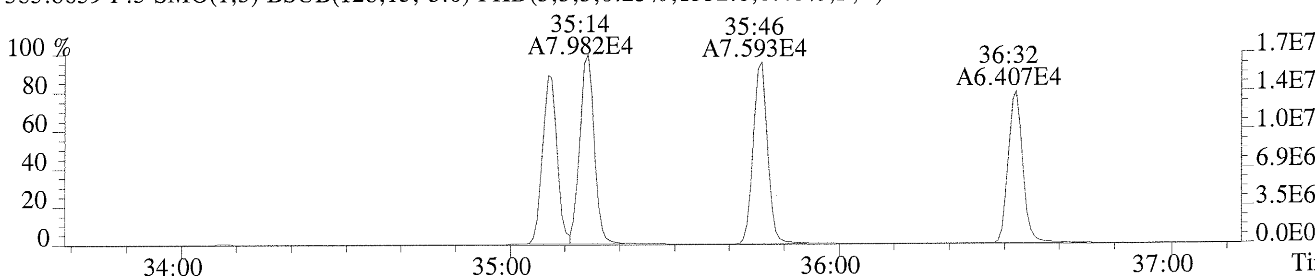
File:P231761 #1-324 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



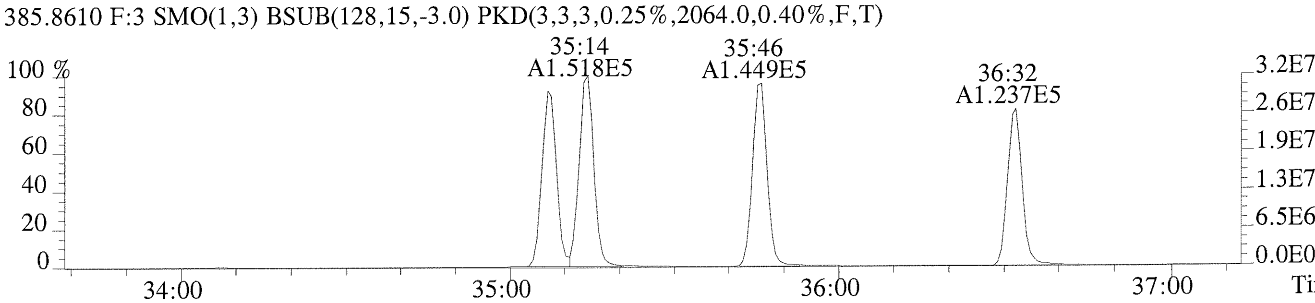
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



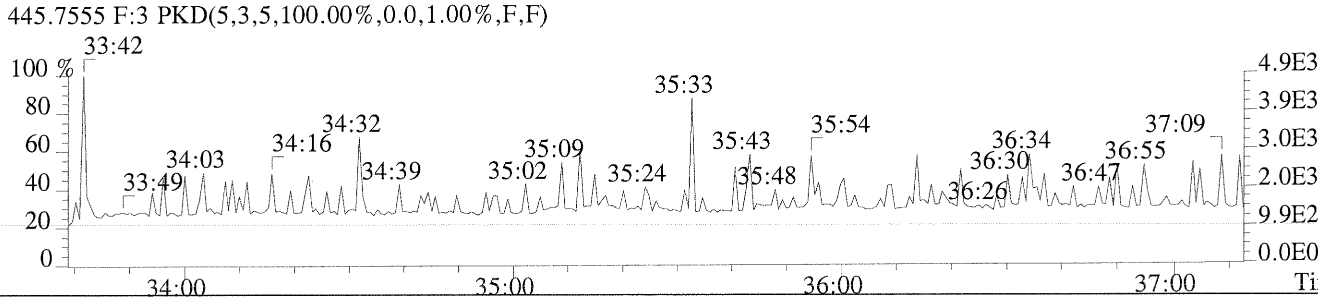
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



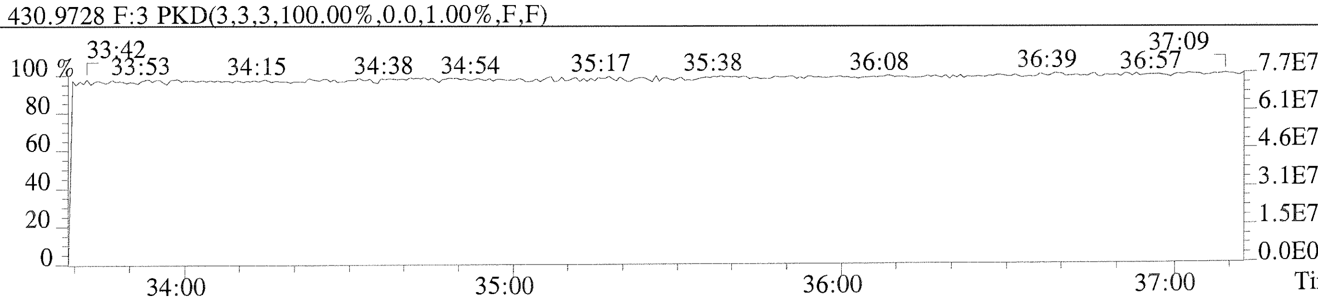
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



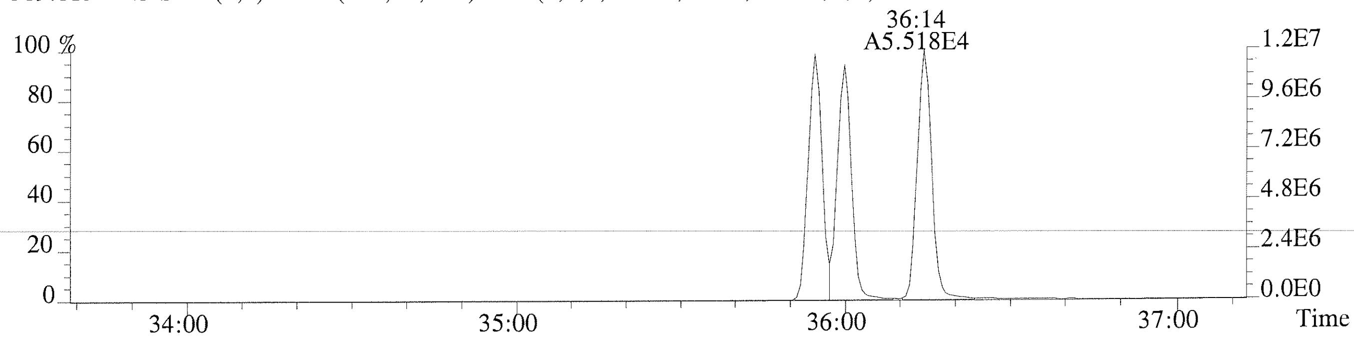
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



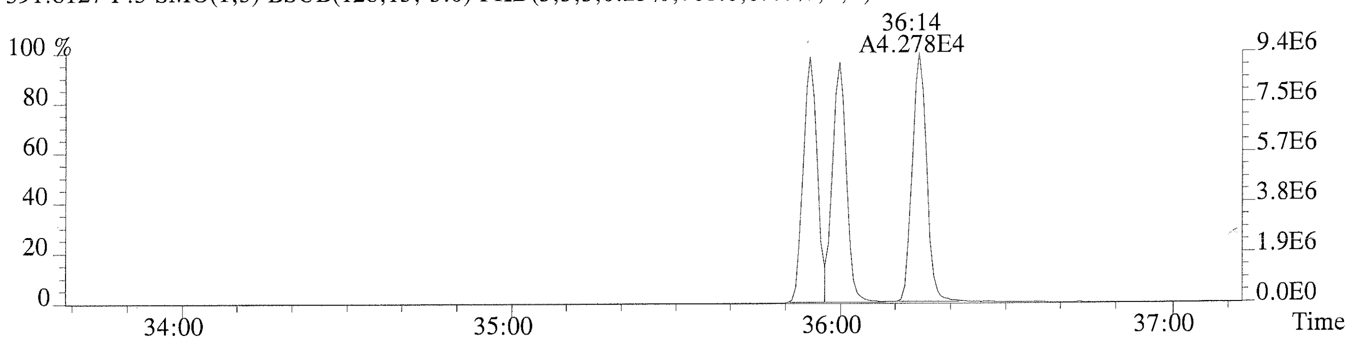
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



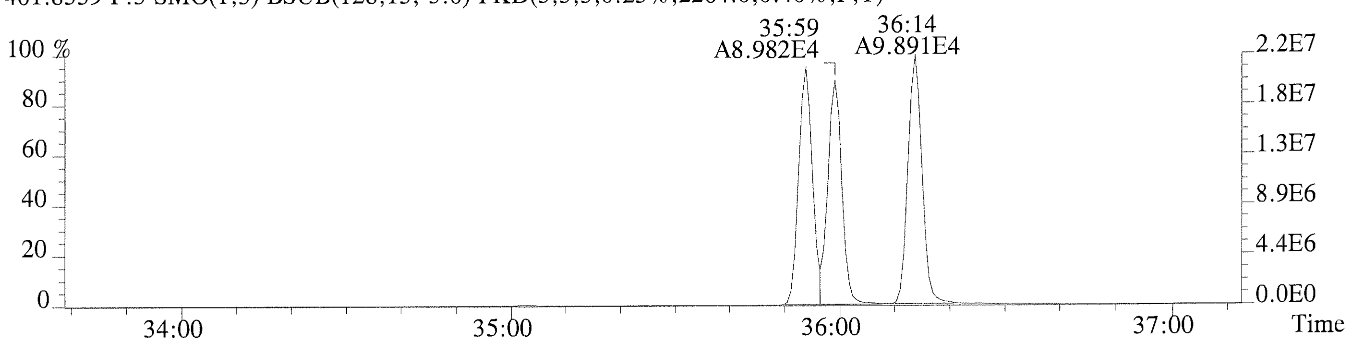
File:P231761 #1-324 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



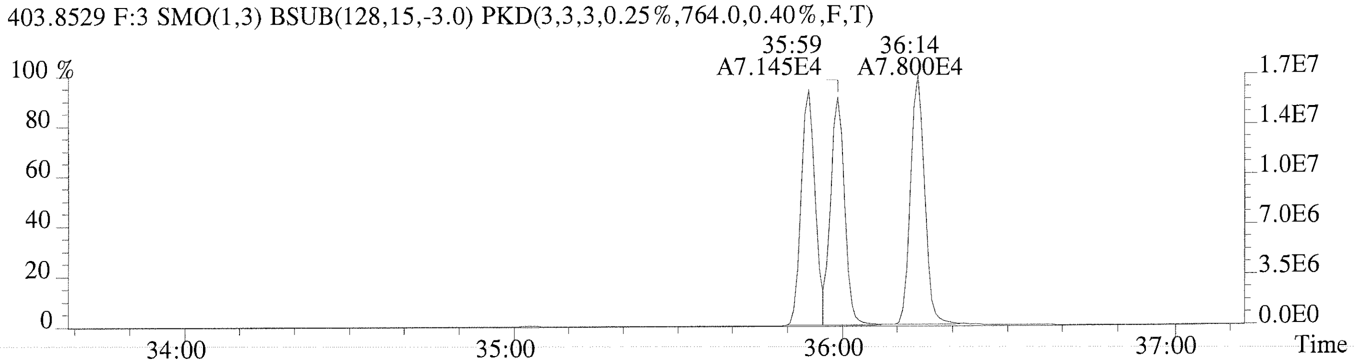
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



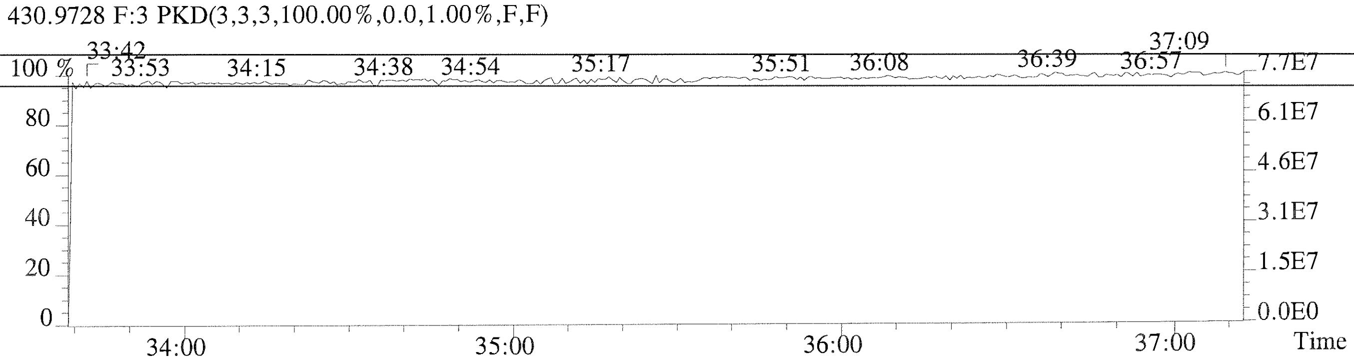
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2264.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

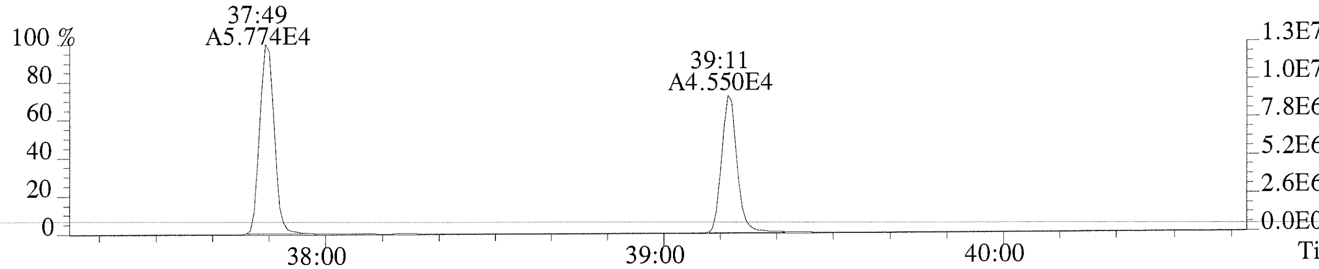


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

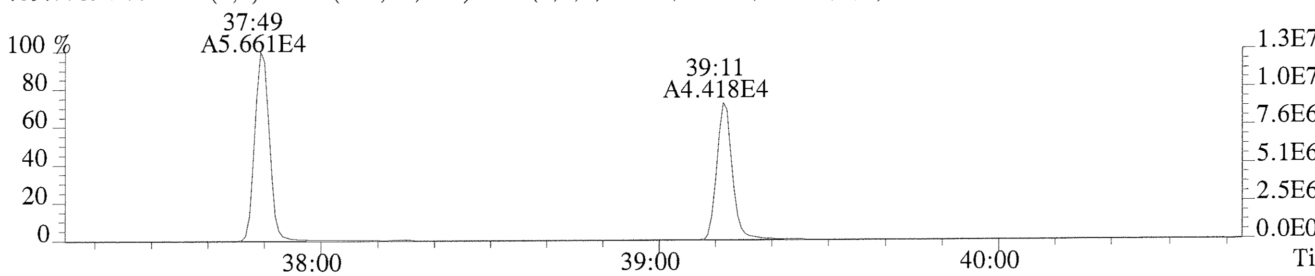


File:P231761 #1-315 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

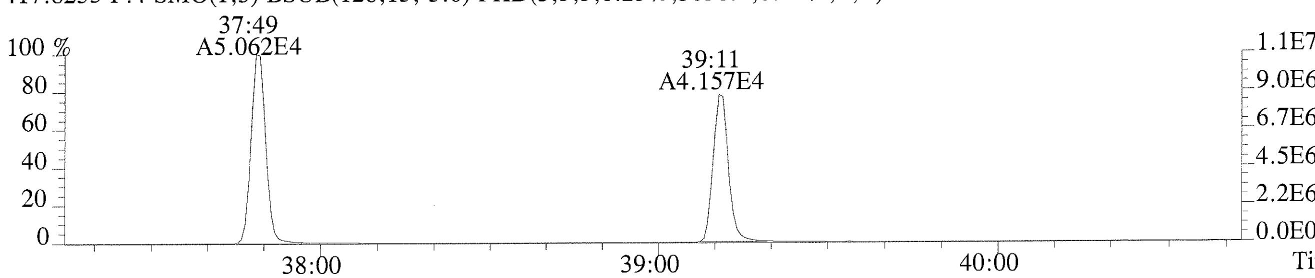
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3760.0,0.50%,F,T)



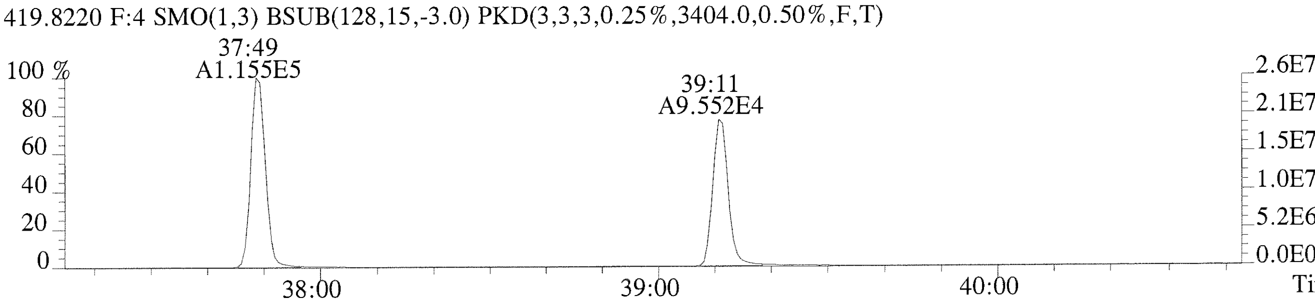
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8632.0,0.50%,F,T)



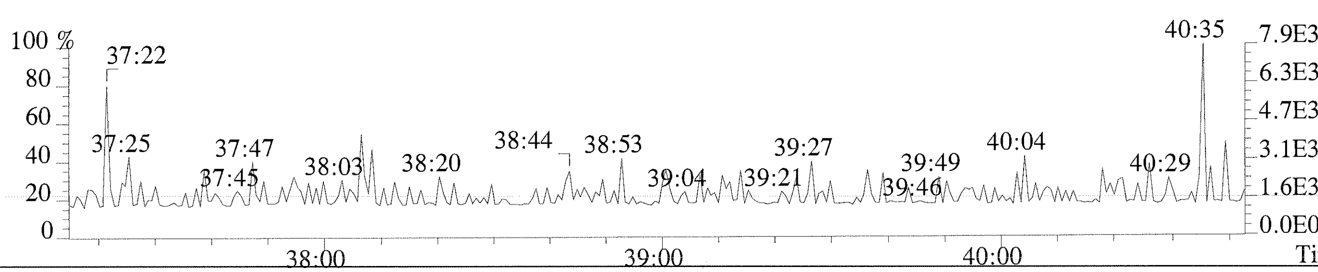
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5036.0,0.50%,F,T)



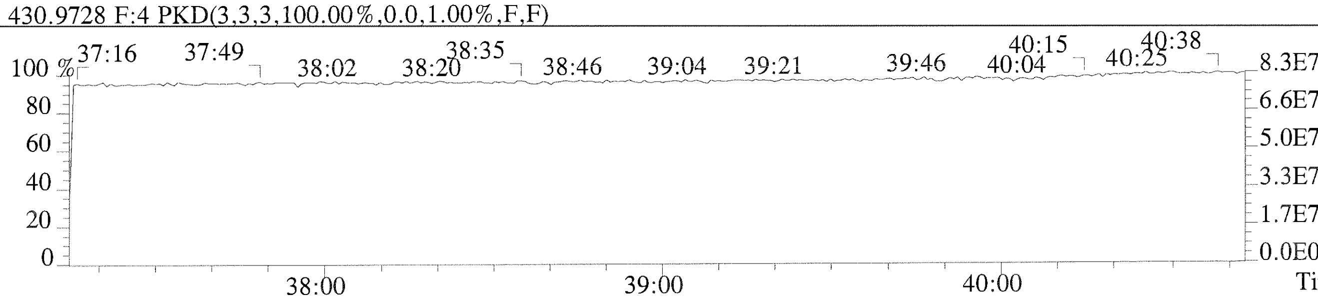
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3404.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

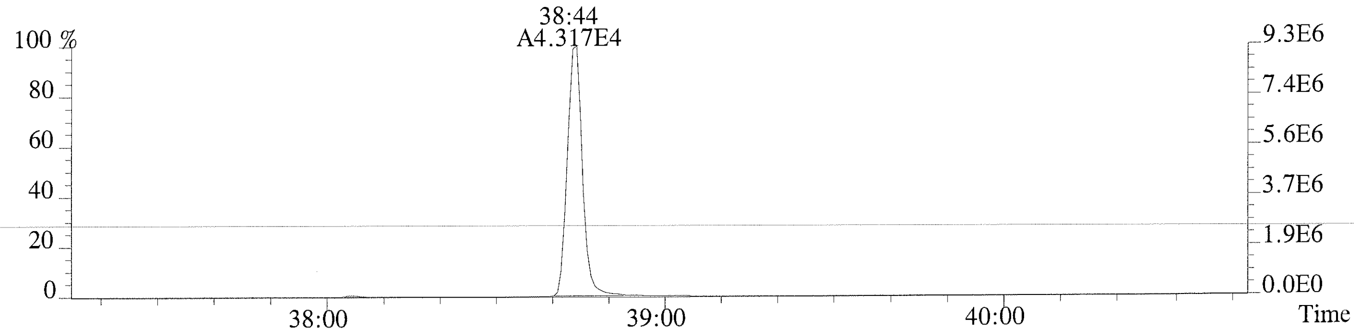


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

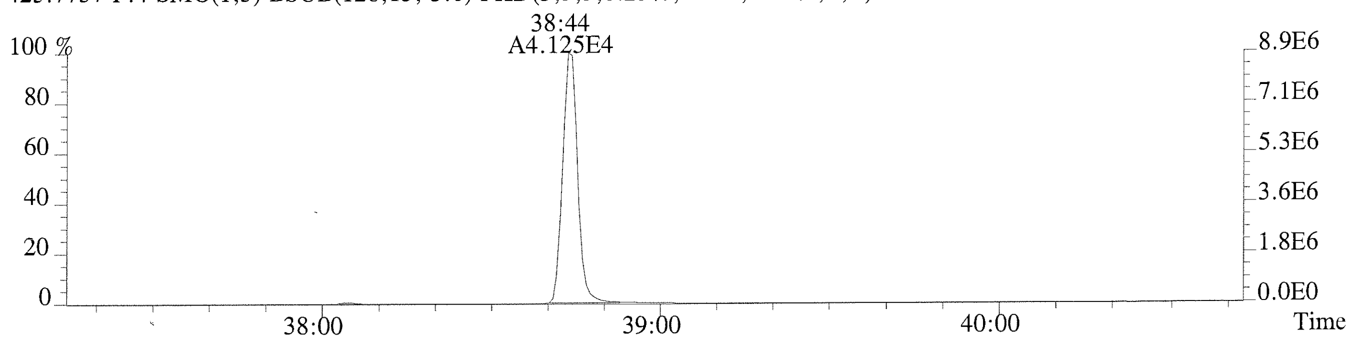


File:P231761 #1-315 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

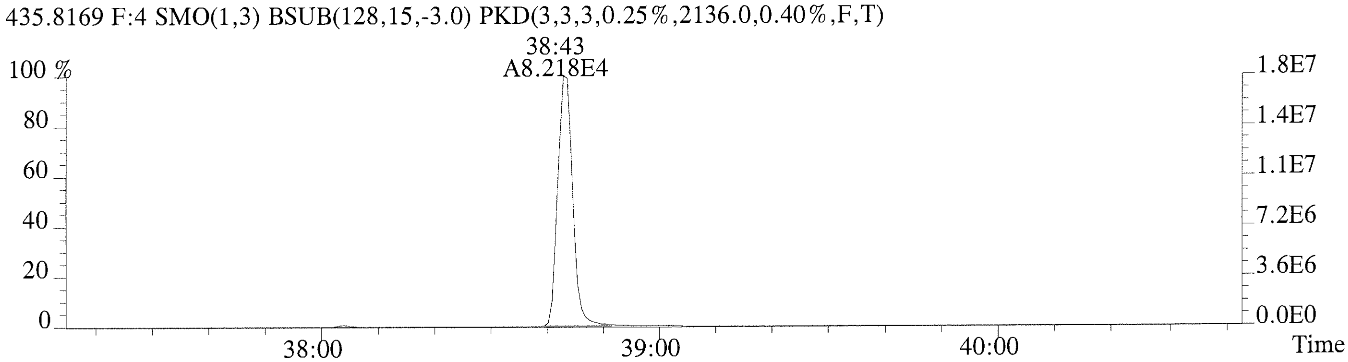
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



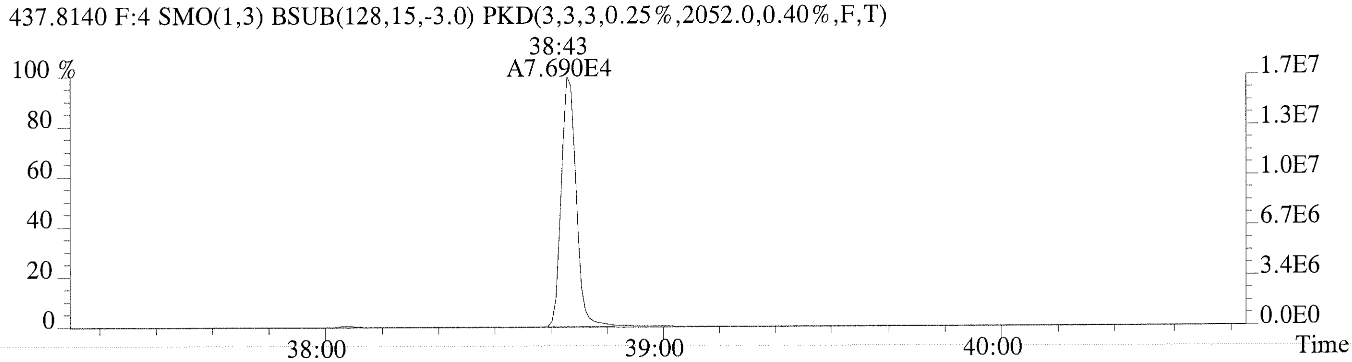
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



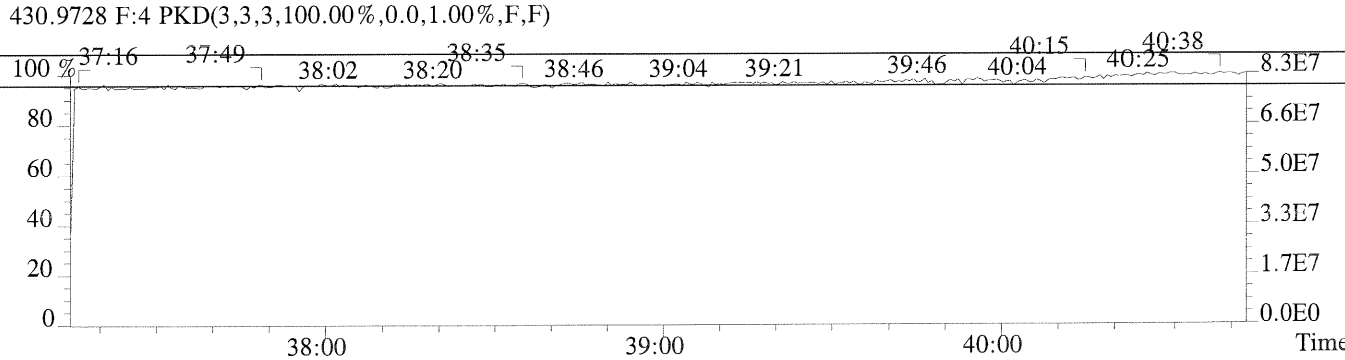
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.40%,F,T)



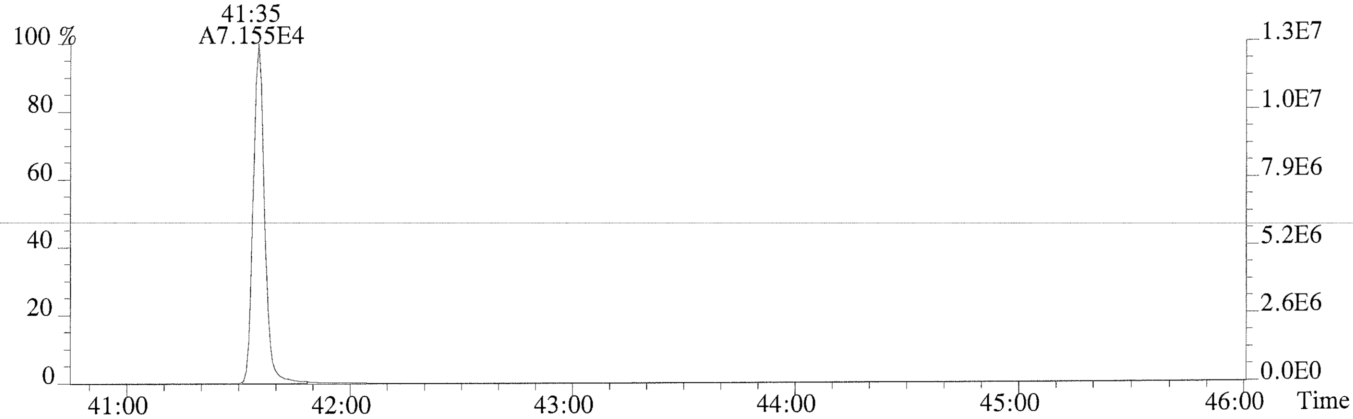
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.40%,F,T)



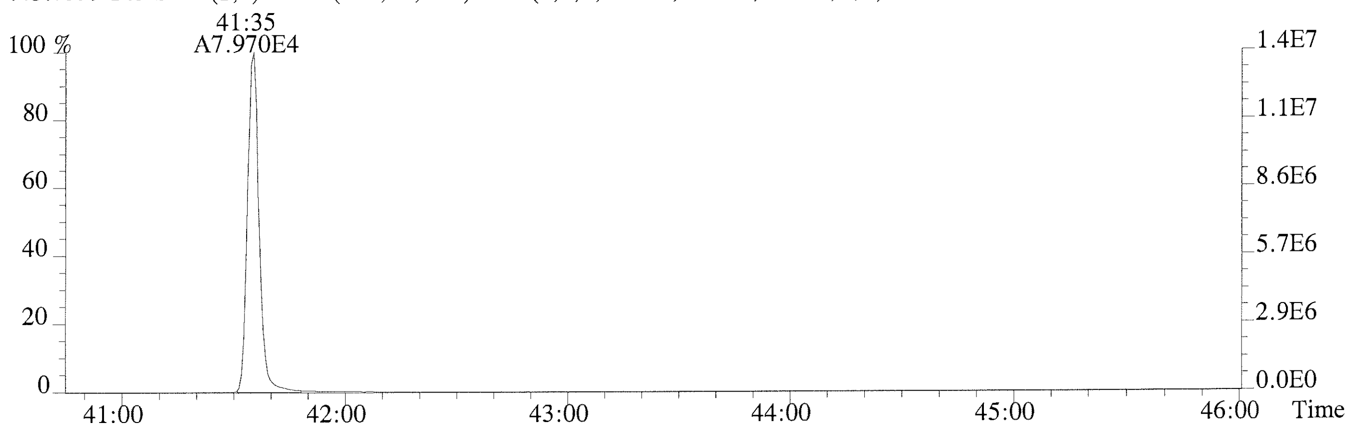
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



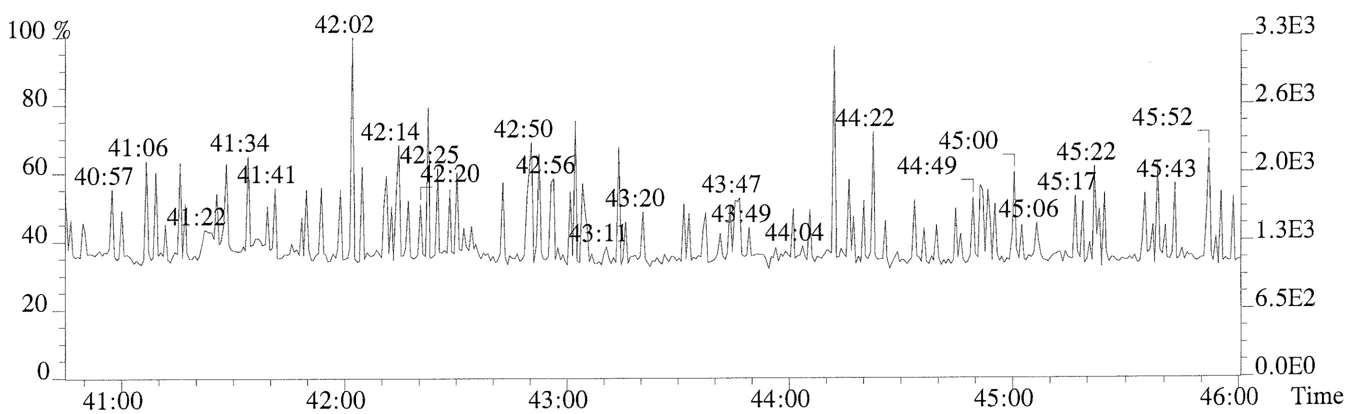
File:P231761 #1-484 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4316.0,0.40%,F,T)



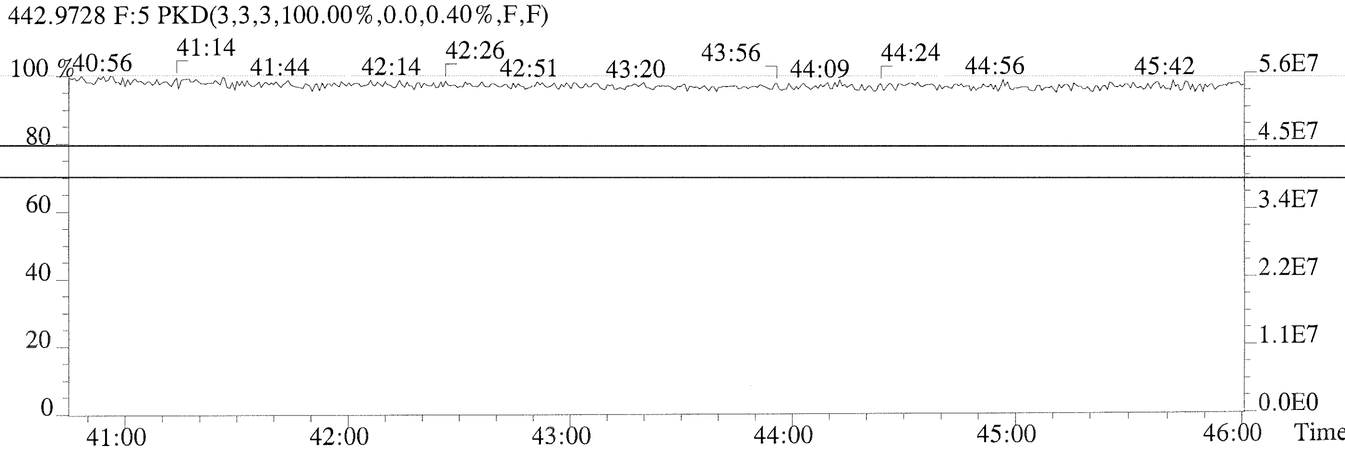
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

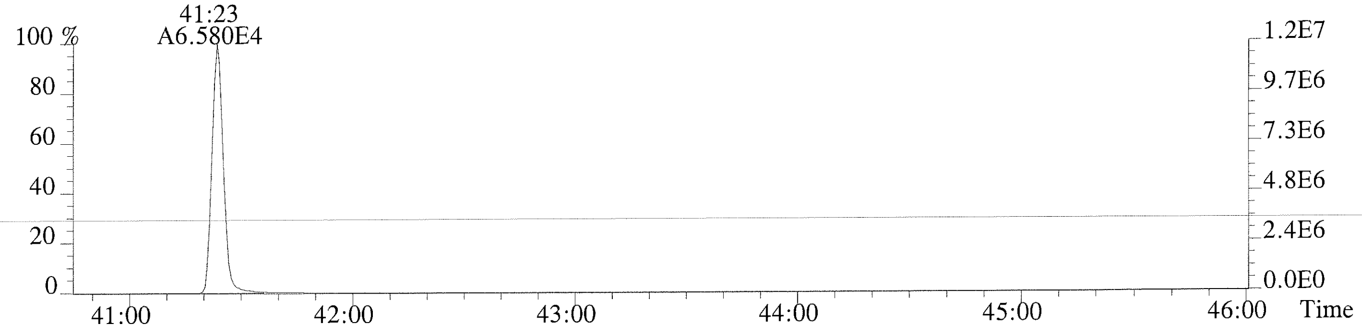


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

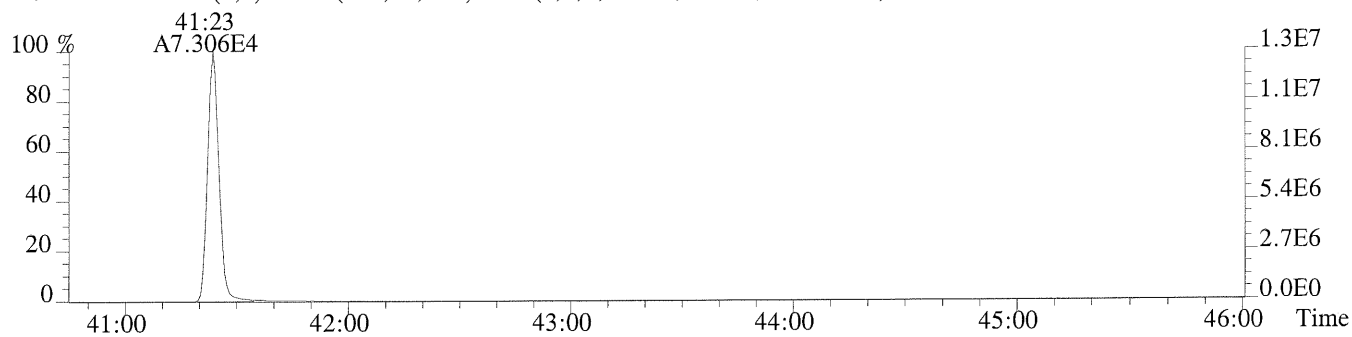


File:P231761 #1-484 Acq: 4-OCT-2014 07:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

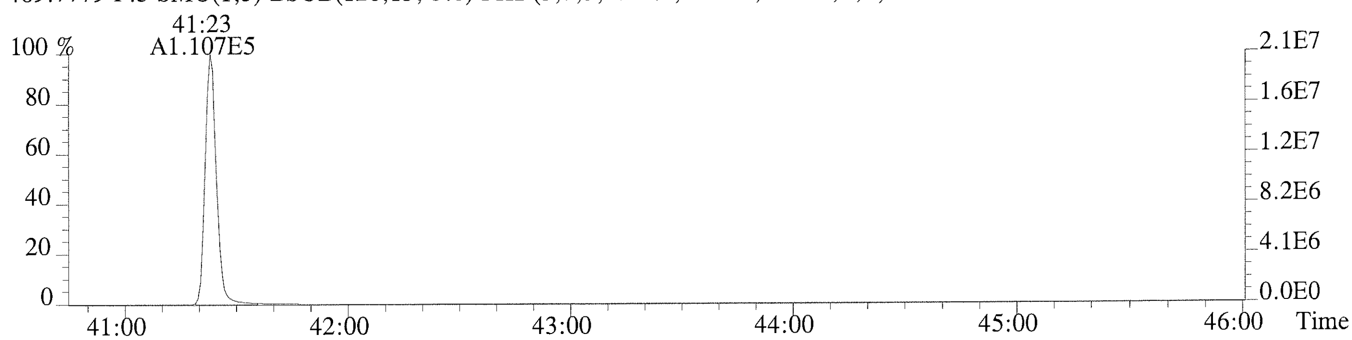
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



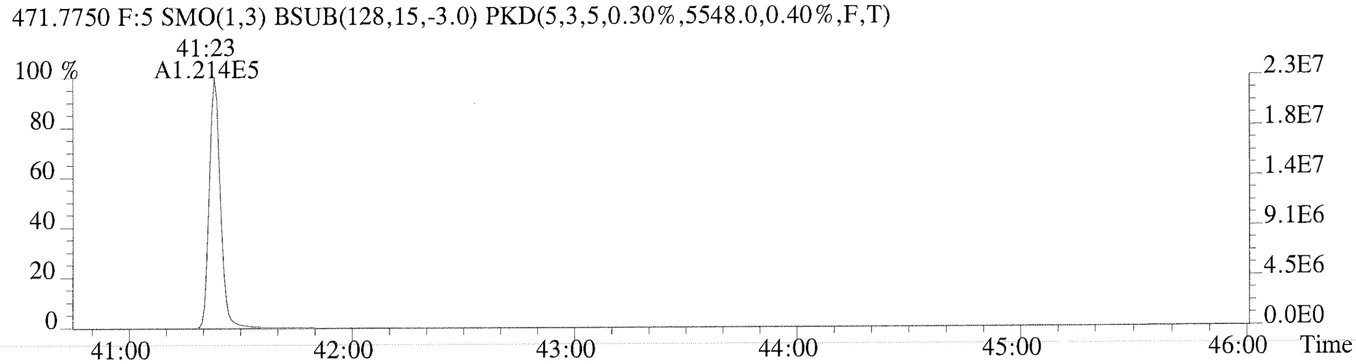
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6840.0,0.40%,F,T)



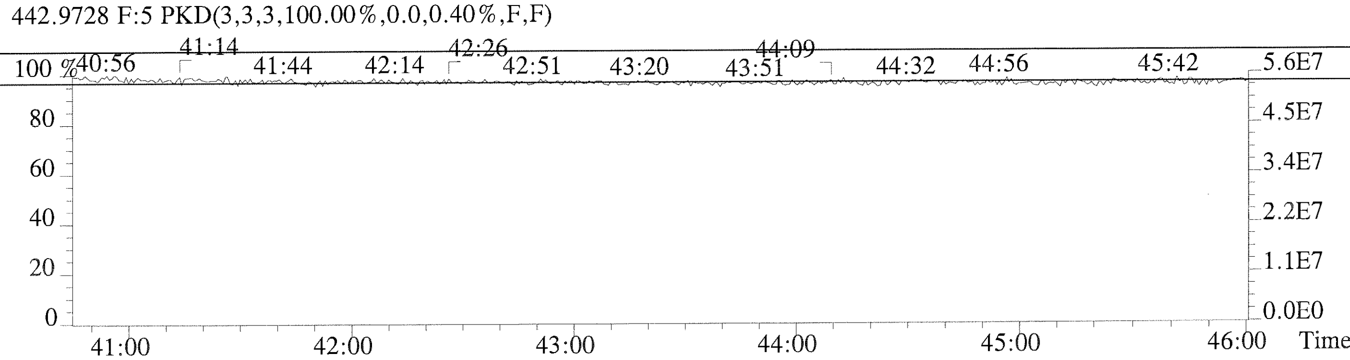
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8284.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5548.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P231790-P231800

Date: 10/07/14

Circle one: Beginning / **Ending**

Method: 1613 / 1613E / **8290** / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature] Second QC: [signature]

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 08/24/14

Init. Calib.Times: 09:48:48

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P231789	7-OCT-14	10:45:44
72675	CS3	P231790	7-OCT-14	11:34:13
METHOD BLANK	EQ1400606-01	P231791	7-OCT-14	13:12:02
HAND DUG WELL WATER	R1407308-001	P231792	7-OCT-14	13:59:17
GW1100	K1410064-001	P231793	7-OCT-14	14:47:09
GW1101	K1410064-002	P231794	7-OCT-14	15:34:55
GW1102	K1410064-003	P231795	7-OCT-14	16:22:46
GW1103	K1410064-004	P231796	7-OCT-14	17:10:38
GW1105	K1410064-006	P231797	7-OCT-14	17:58:30
GW1106	K1410064-007	P231798	7-OCT-14	18:46:22
GW1107	K1410064-008	P231799	7-OCT-14	19:34:14
72675	CS3	P231800	7-OCT-14	20:22:05

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2141007.SPL
Last Modified: Wednesday, October 08, 2014 08:13:40 Central Daylight Time
Printed: Wednesday, October 08, 2014 08:13:49 Central Daylight Time

e: P231790res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/07/14	10:45	P231789	WINDOW DEFINE	63680	LL	HRMS check 10:39	8290CAS
2		11:34	P231790	CS3	72675			8290CAS
3		13:12	P231791	EQ1400606-01	MB			8290CAS
4		13:59	P231792	R1407308-001	R1407308-001			8290CAS
5		14:47	P231793	K1410064-001	K1410064-001			8290CAS
6		15:34	P231794	K1410064-002	K1410064-002			8290CAS
7		16:22	P231795	K1410064-003	K1410064-003			8290CAS
8		17:10	P231796	K1410064-004	K1410064-004			8290CAS
9		17:58	P231797	K1410064-006	K1410064-006			8290CAS
10		18:46	P231798	K1410064-007	K1410064-007			8290CAS
11		19:34	P231799	K1410064-008	K1410064-008			8290CAS
12		20:22	P231800	CS3	72675			8290CAS
13		21:09	P231801	TEST	TEST		HRMS Check 08:27	8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			8290CAS
29			---	---	---			8290CAS
30	---	---	---	---	---	---	---	8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	---	---	---	8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---		---	---	TCDFCAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	8290CAS
39	---	---	---	---	---	---	---	8290CAS

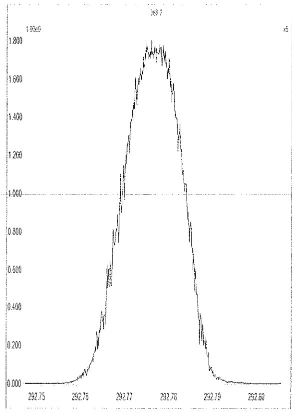
REVIEWED BY: gc 10/08/14

057

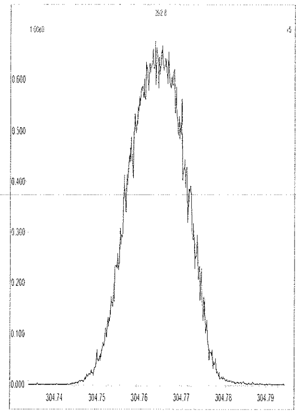
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, October 07, 2014 10:39:38 Central Daylight Time

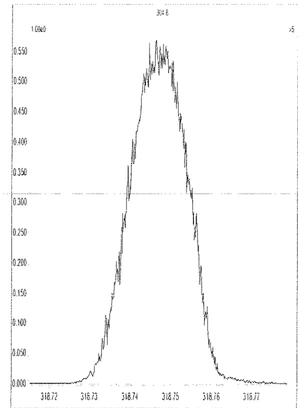
M 292.9824 R 10774



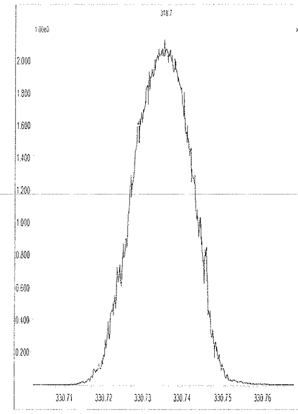
M 304.9824 R 10505



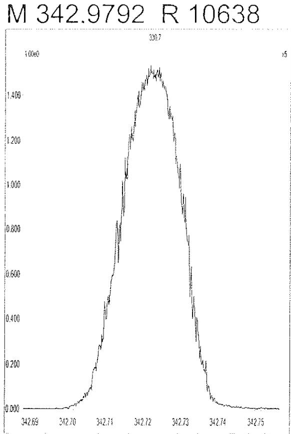
M 318.9792 R 10592



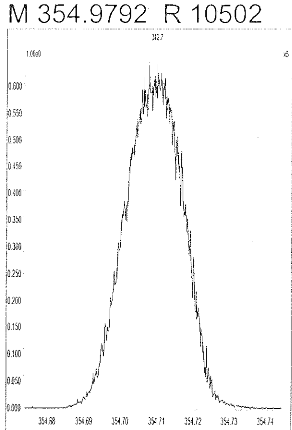
M 330.9792 R 10919



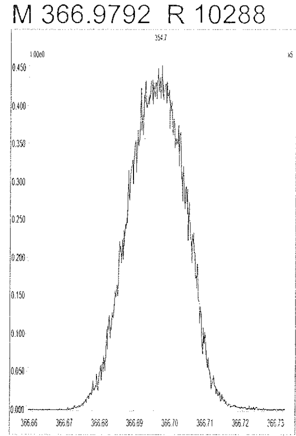
M 342.9792 R 10638



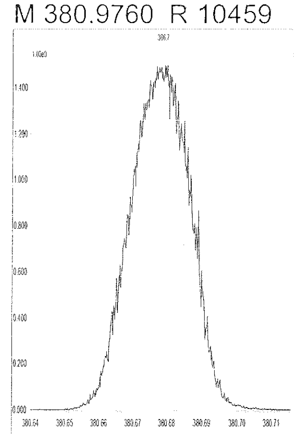
M 354.9792 R 10502



M 366.9792 R 10288



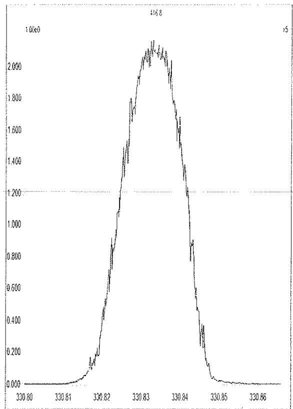
M 380.9760 R 10459



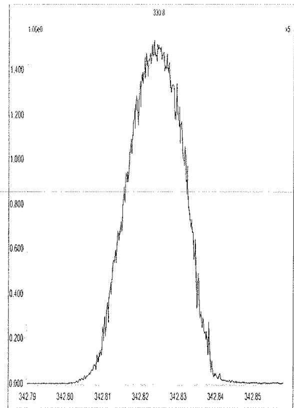
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, October 07, 2014 10:40:30 Central Daylight Time

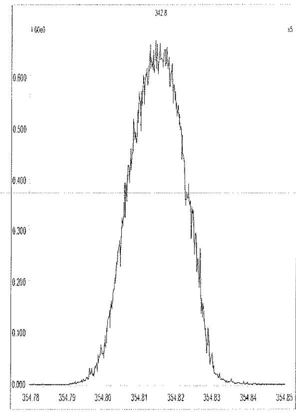
M 330.9792 R 10965



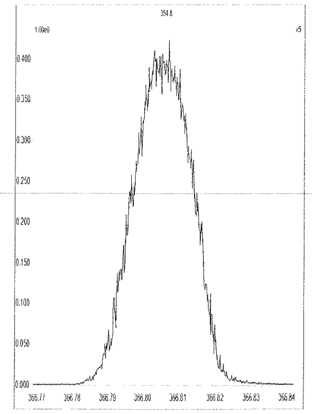
M 342.9792 R 11264



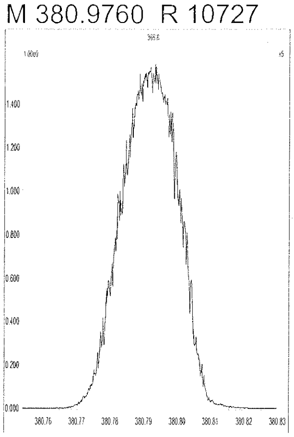
M 354.9792 R 11112



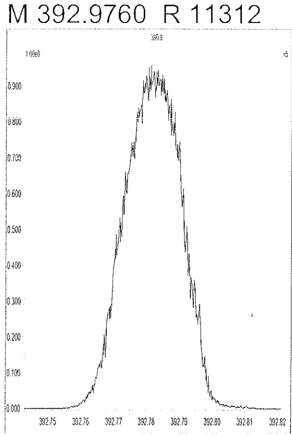
M 366.9792 R 11061



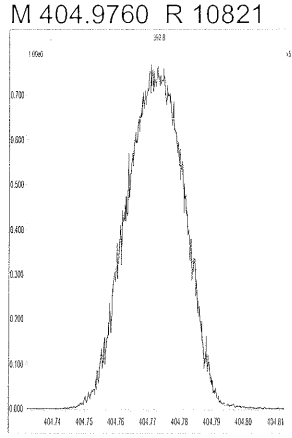
M 380.9760 R 10727



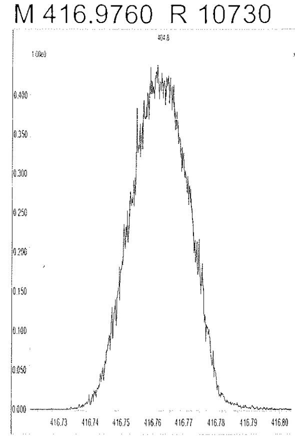
M 392.9760 R 11312



M 404.9760 R 10821



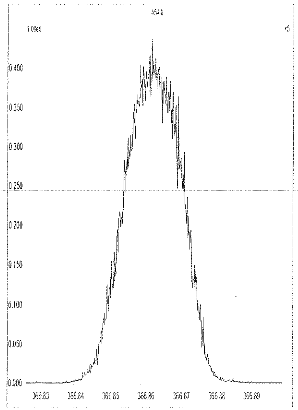
M 416.9760 R 10730



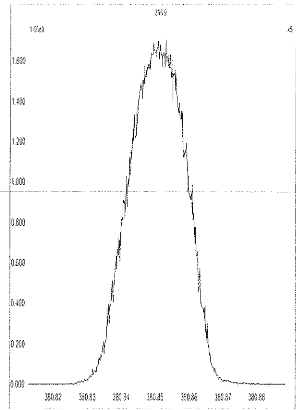
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, October 07, 2014 10:41:26 Central Daylight Time

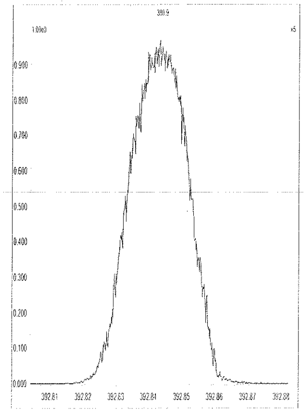
M 366.9792 R 10777



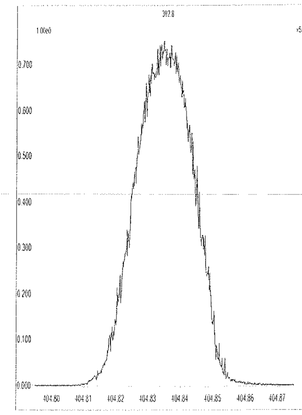
M 380.9760 R 11012



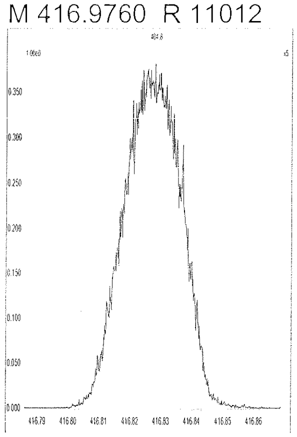
M 392.9760 R 10962



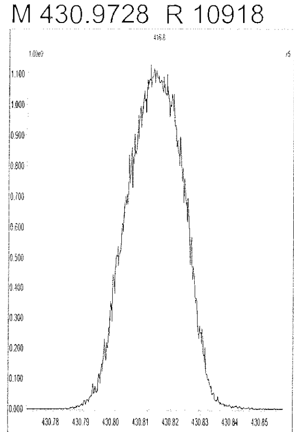
M 404.9760 R 10823



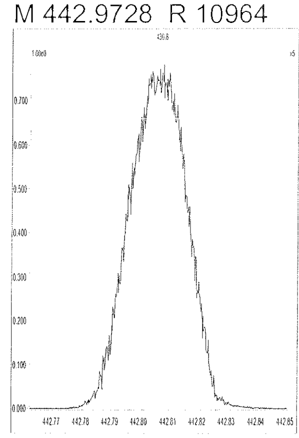
M 416.9760 R 11012



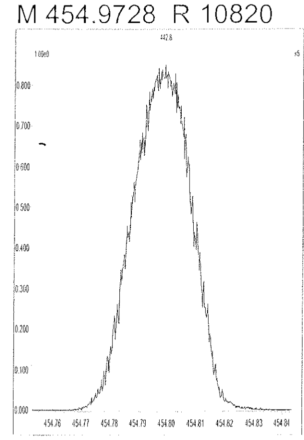
M 430.9728 R 10918



M 442.9728 R 10964



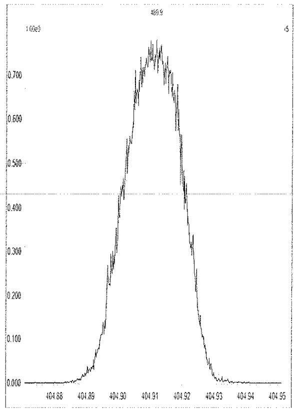
M 454.9728 R 10820



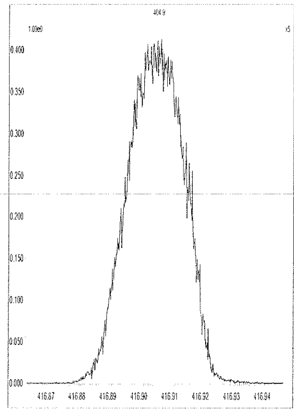
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, October 07, 2014 10:42:19 Central Daylight Time

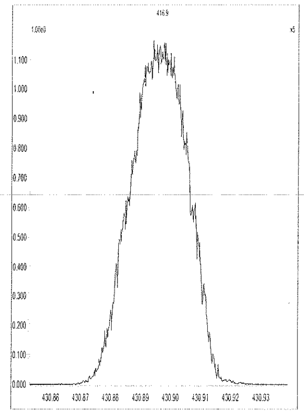
M 404.9760 R 11213



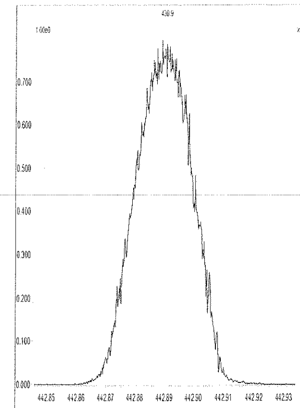
M 416.9760 R 11112



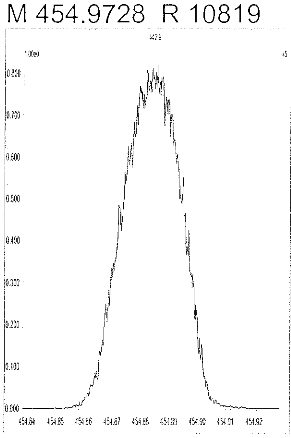
M 430.9728 R 11110



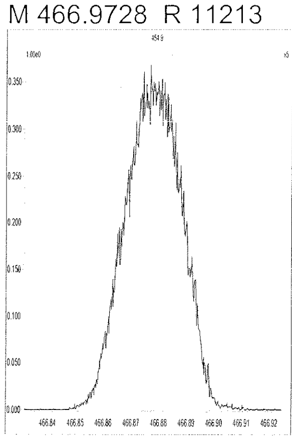
M 442.9728 R 11310



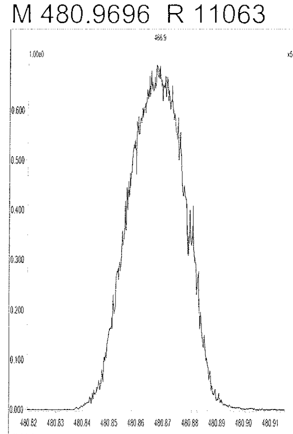
M 454.9728 R 10819



M 466.9728 R 11213



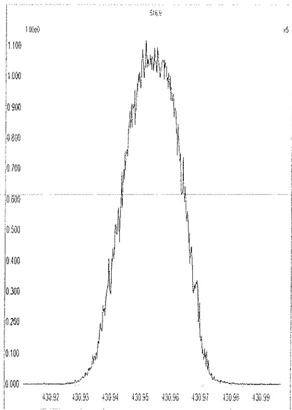
M 480.9696 R 11063



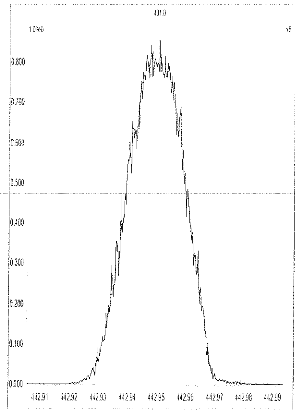
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, October 07, 2014 10:43:03 Central Daylight Time

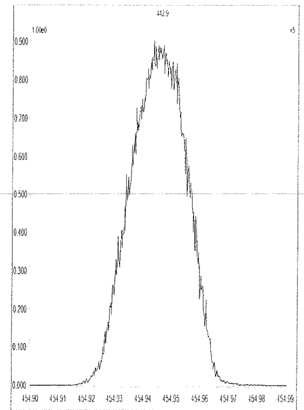
M 430.9728 R 11063



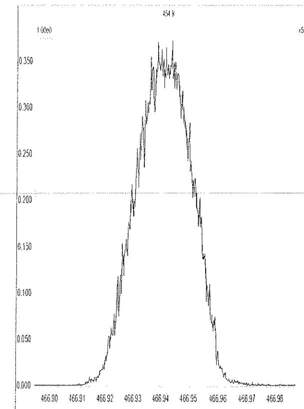
M 442.9728 R 11160



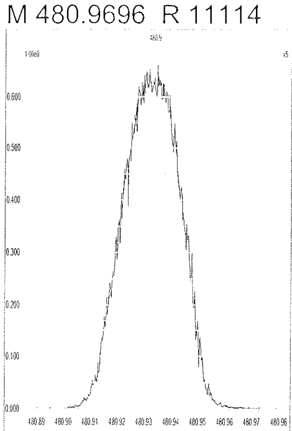
M 454.9728 R 11158



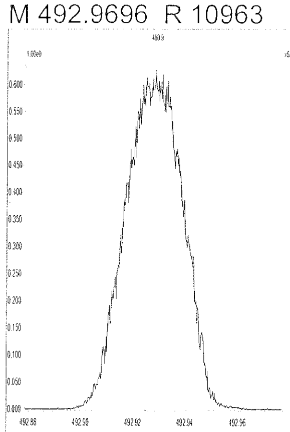
M 466.9728 R 10730



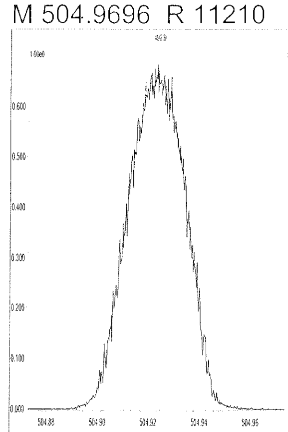
M 480.9696 R 11114



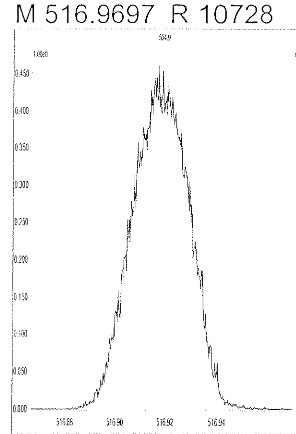
M 492.9696 R 10963



M 504.9696 R 11210



M 516.9697 R 10728

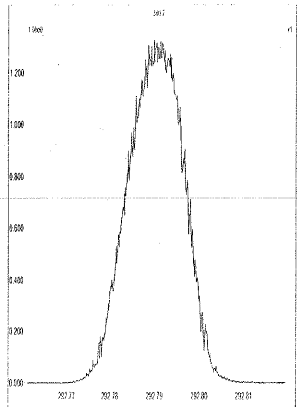


Experiment Calibration Report **MassLynx 4.1**

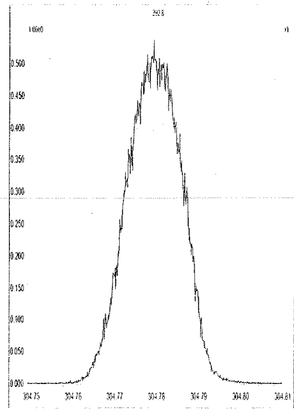
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, October 08, 2014 08:27:10 Central Daylight Time

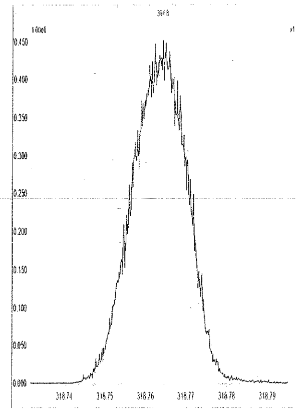
M 292.9824 R 11159



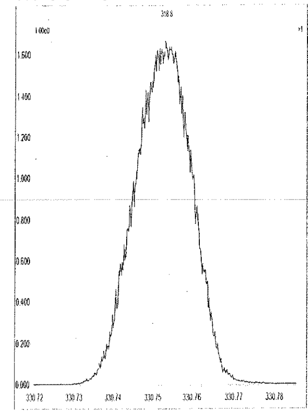
M 304.9824 R 10919



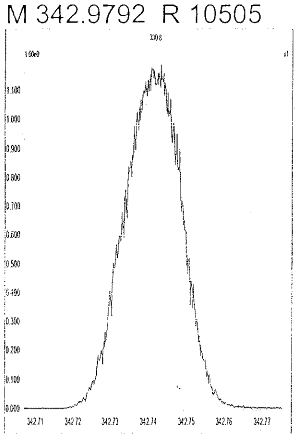
M 318.9792 R 10504



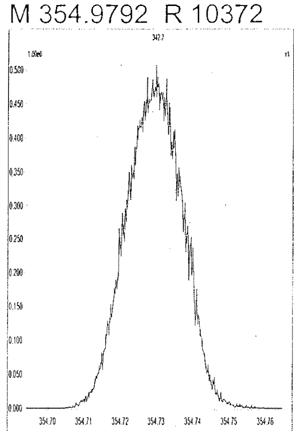
M 330.9792 R 10596



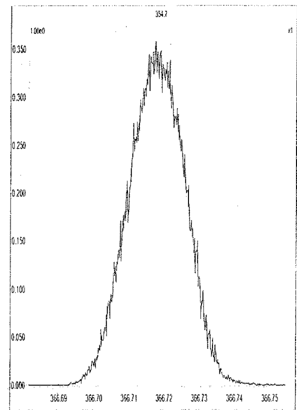
M 342.9792 R 10505



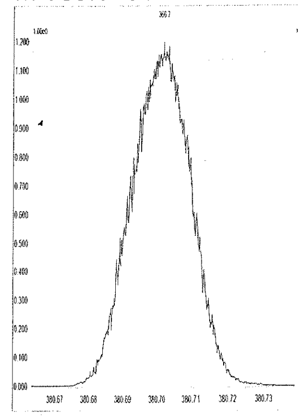
M 354.9792 R 10372



M 366.9792 R 10081



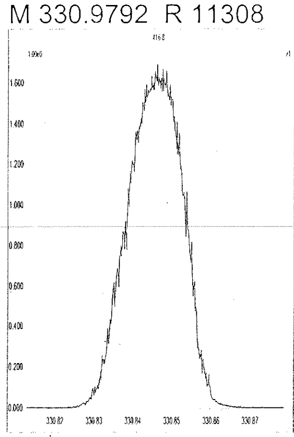
M 380.9760 R 10121



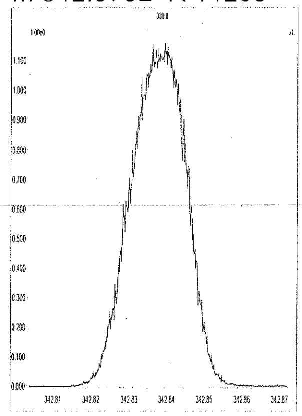
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, October 08, 2014 08:29:01 Central Daylight Time

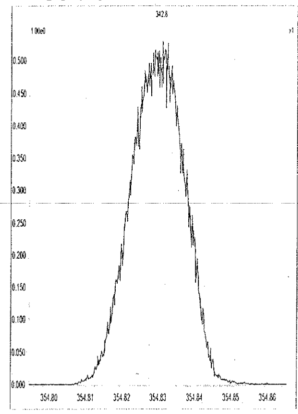
M 330.9792 R 11308



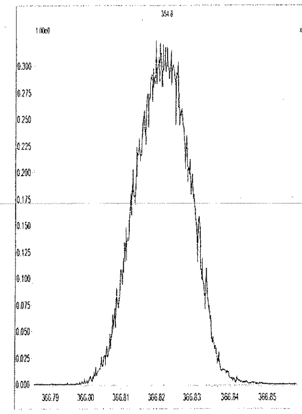
M 342.9792 R 11209



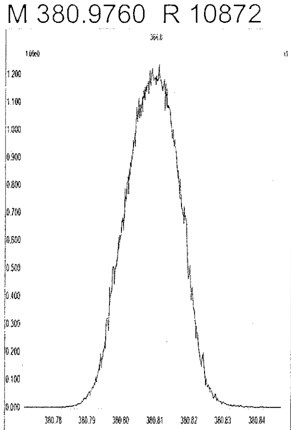
M 354.9792 R 11207



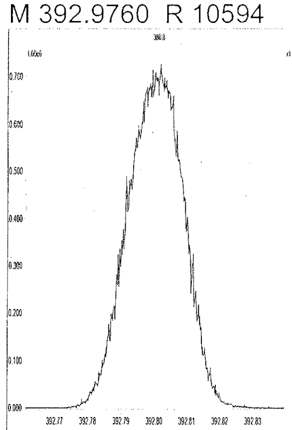
M 366.9792 R 10964



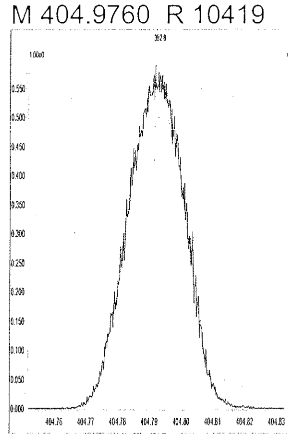
M 380.9760 R 10872



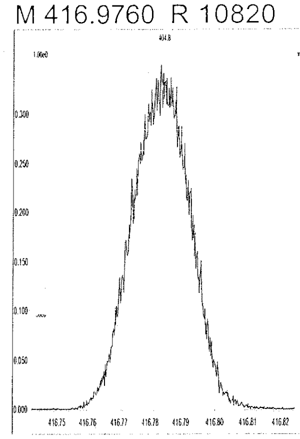
M 392.9760 R 10594



M 404.9760 R 10419



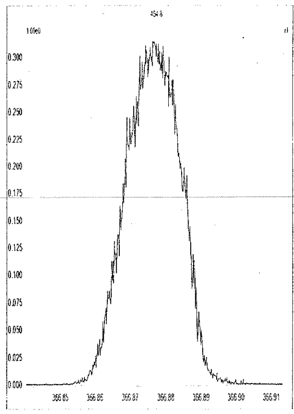
M 416.9760 R 10820



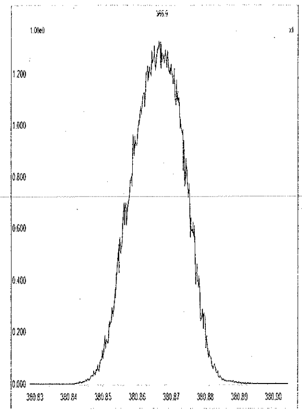
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, October 08, 2014 08:29:53 Central Daylight Time

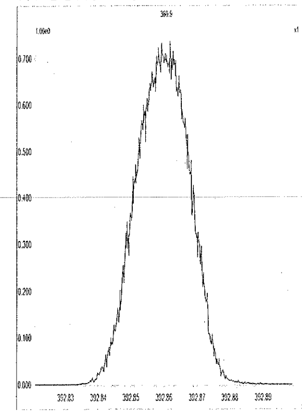
M 366.9792 R 11629



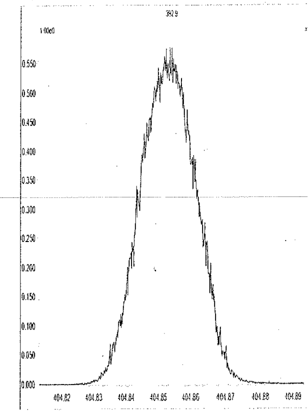
M 380.9760 R 11415



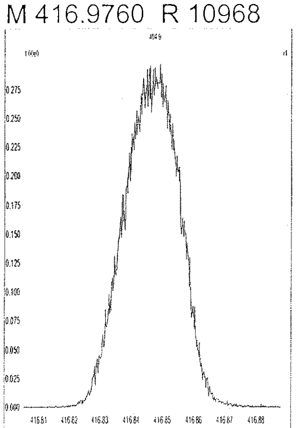
M 392.9760 R 11159



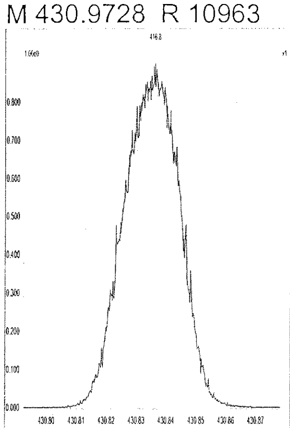
M 404.9760 R 11014



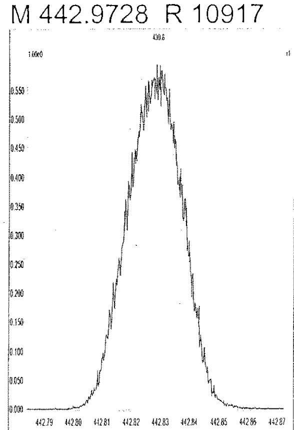
M 416.9760 R 10968



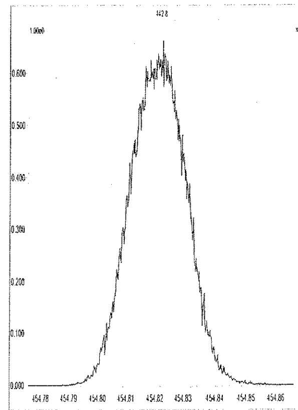
M 430.9728 R 10963



M 442.9728 R 10917



M 454.9728 R 10868

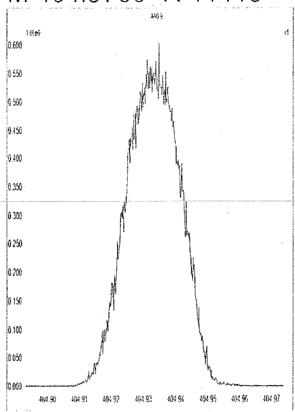


Experiment Calibration Report **MassLynx 4.1**

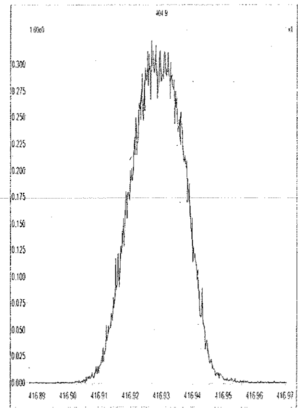
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, October 08, 2014 08:30:56 Central Daylight Time

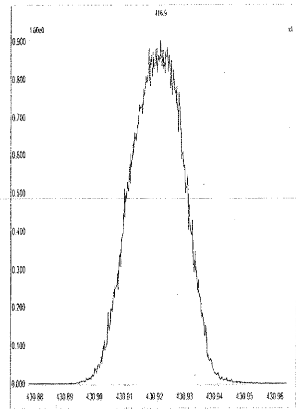
M 404.9760 R 11418



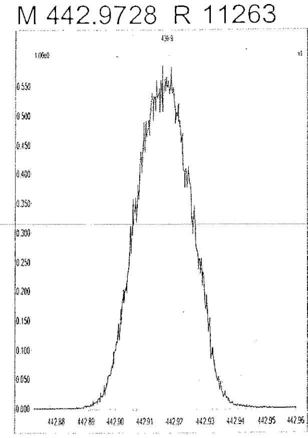
M 416.9760 R 11469



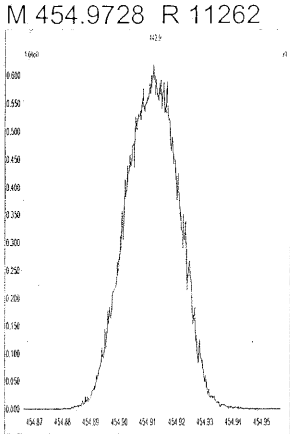
M 430.9728 R 11161



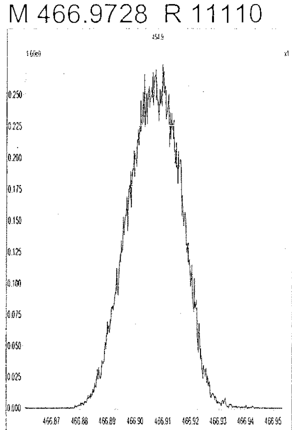
M 442.9728 R 11263



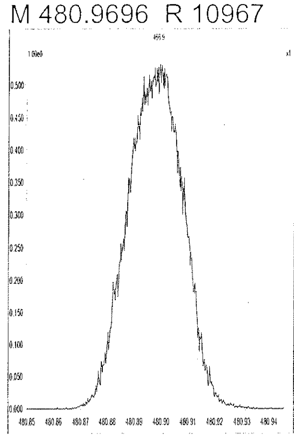
M 454.9728 R 11262



M 466.9728 R 11110



M 480.9696 R 10967

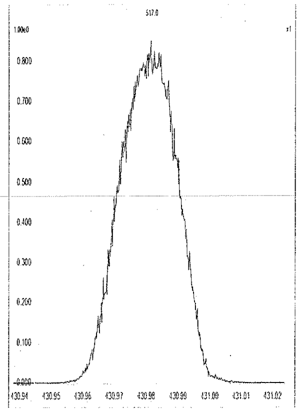


Experiment Calibration Report **MassLynx 4.1**

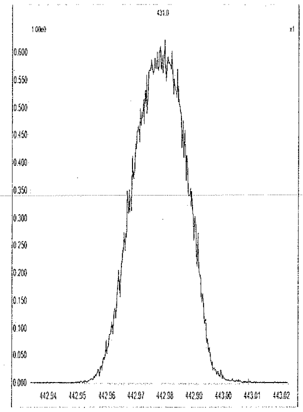
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, October 08, 2014 08:31:54 Central Daylight Time

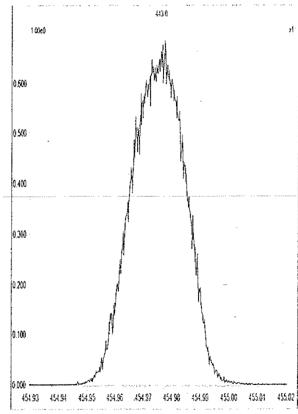
M 430.9728 R 11469



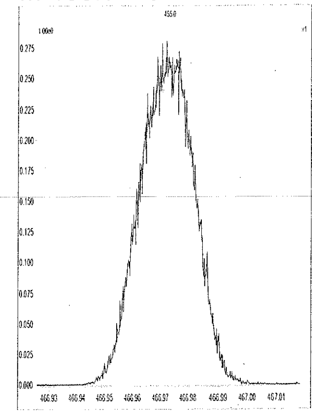
M 442.9728 R 11682



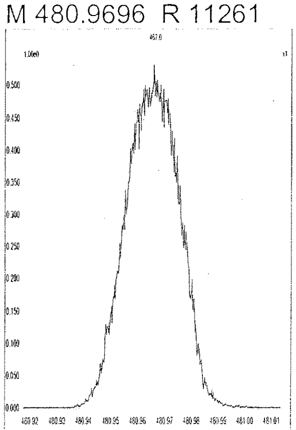
M 454.9728 R 11626



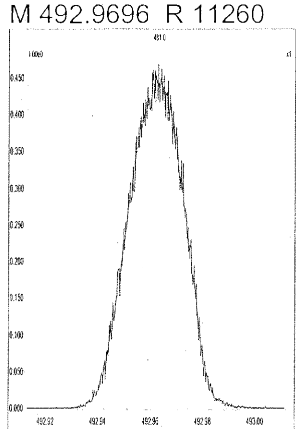
M 466.9728 R 11518



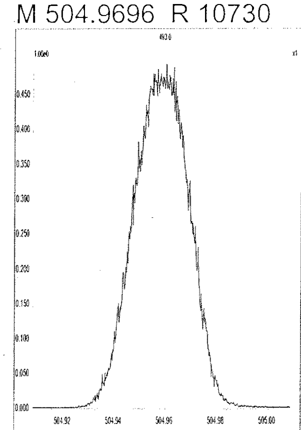
M 480.9696 R 11261



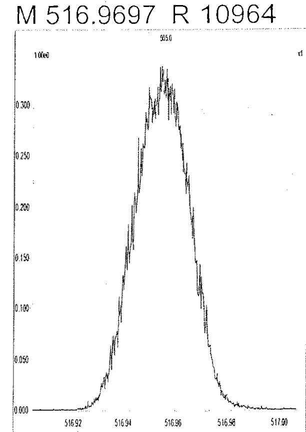
M 492.9696 R 11260



M 504.9696 R 10730



M 516.9697 R 10964



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

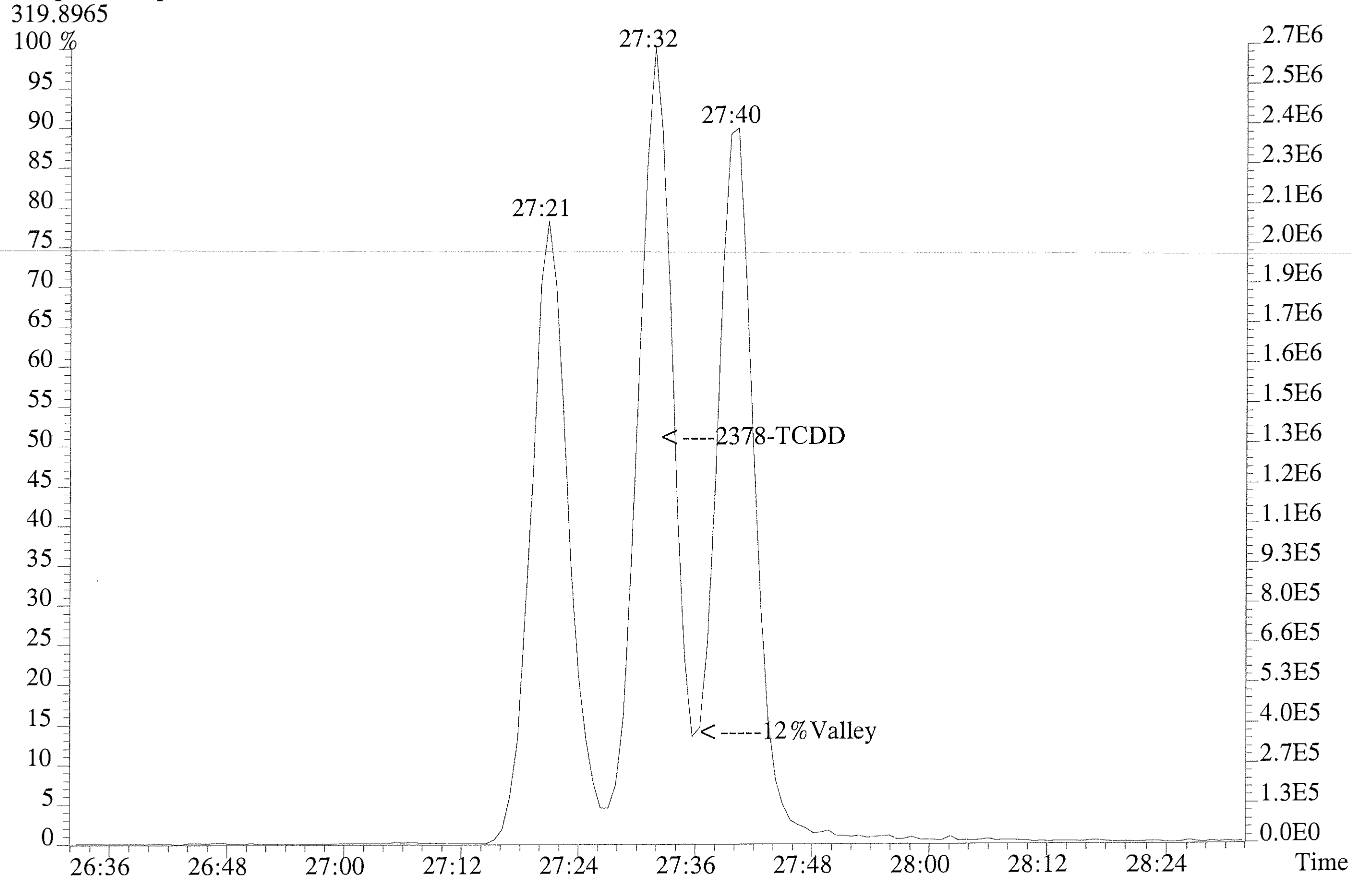
WDM

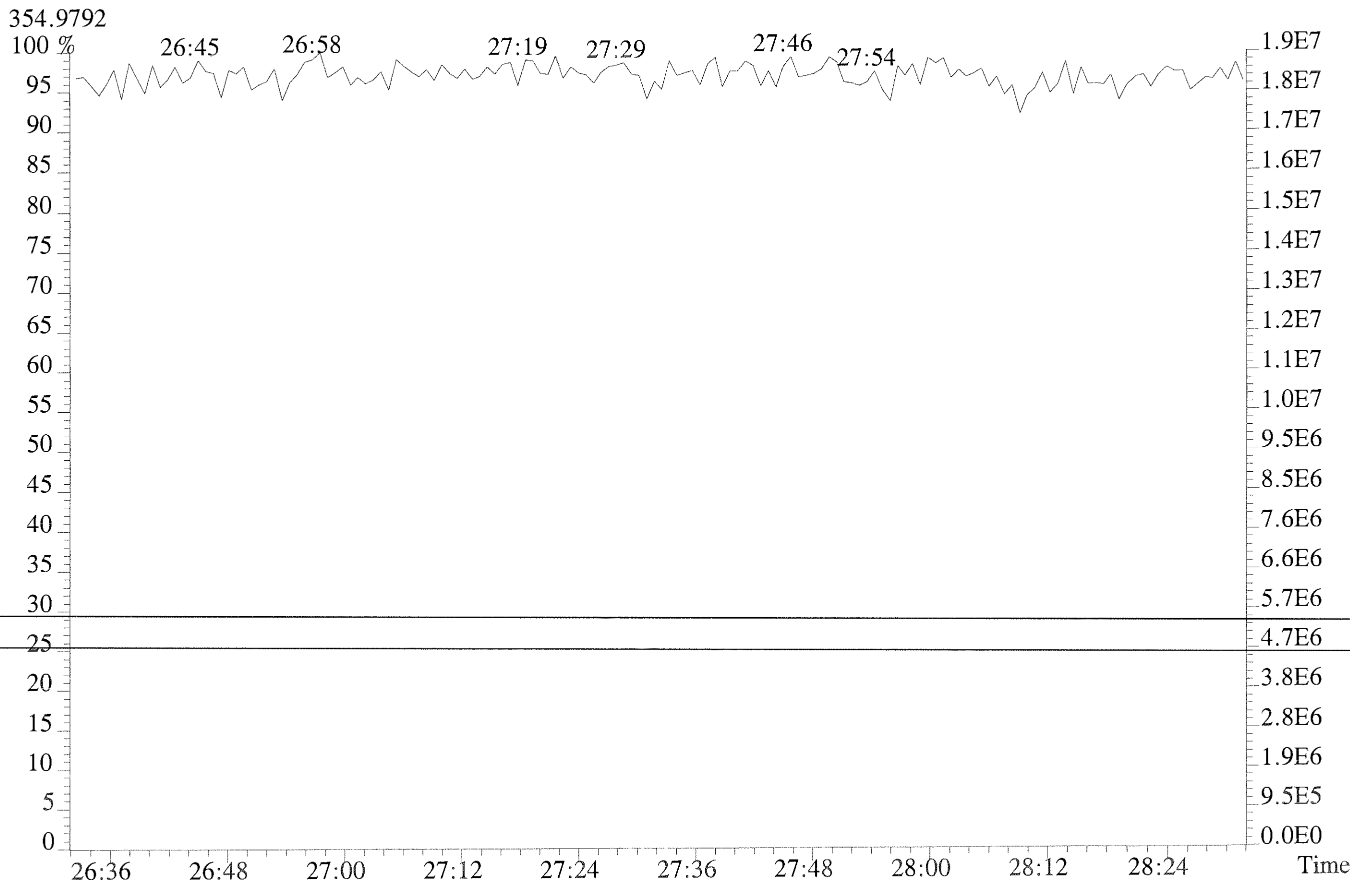
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______________ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P231789
Date Analyzed: 7-OCT-2014
Time Analyzed: 10:45:44

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:11	28:49
TCDD	23:51	28:38
PeCDF	28:45	33:17
PeCDD	30:25	33:02
HxCDF	33:58	36:34
HxCDD	34:31	36:09
HpCDF	37:49	39:10
HpCDD	38:04	38:43

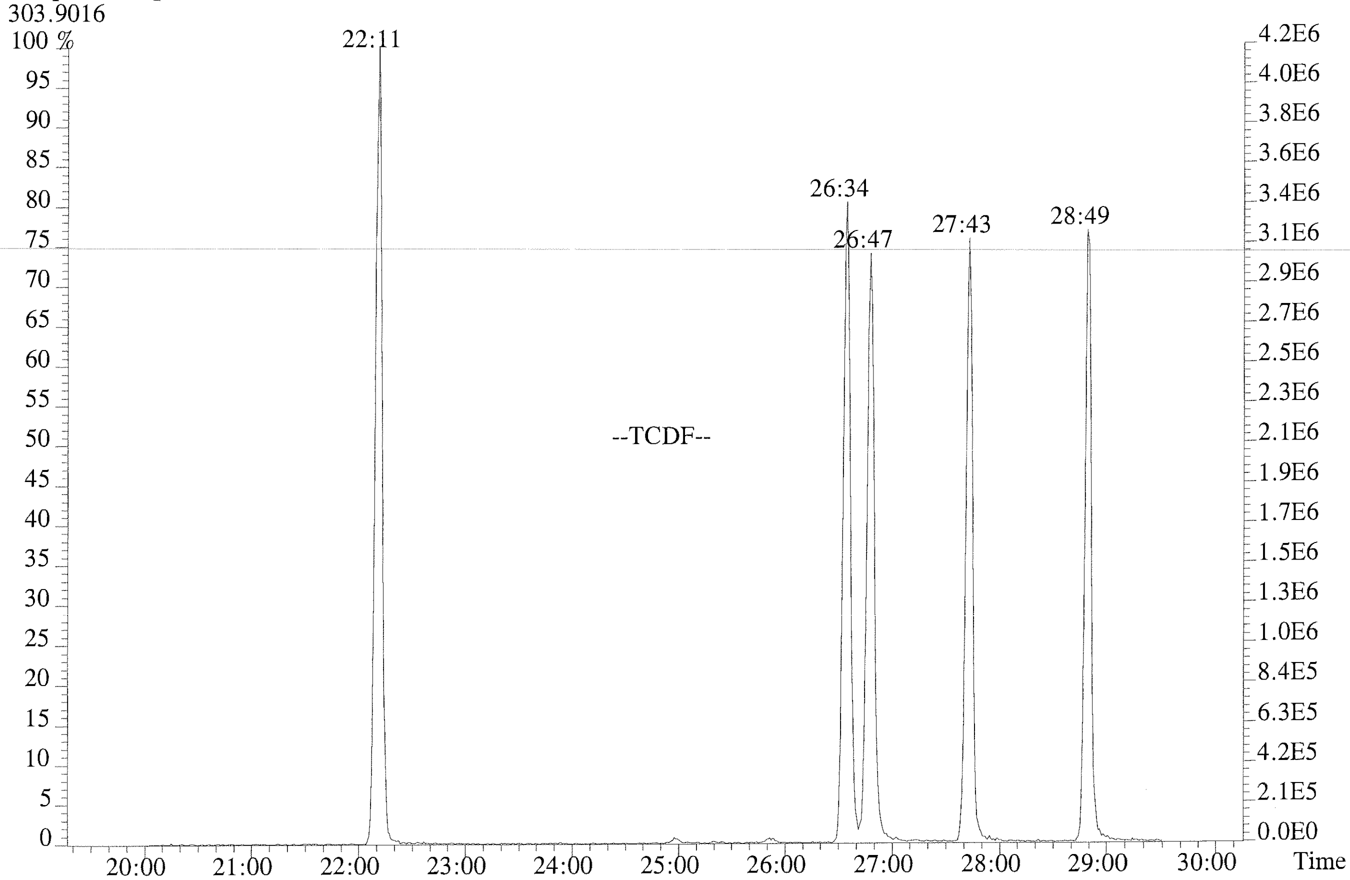
% Valley 2378-TCDD: 12 %

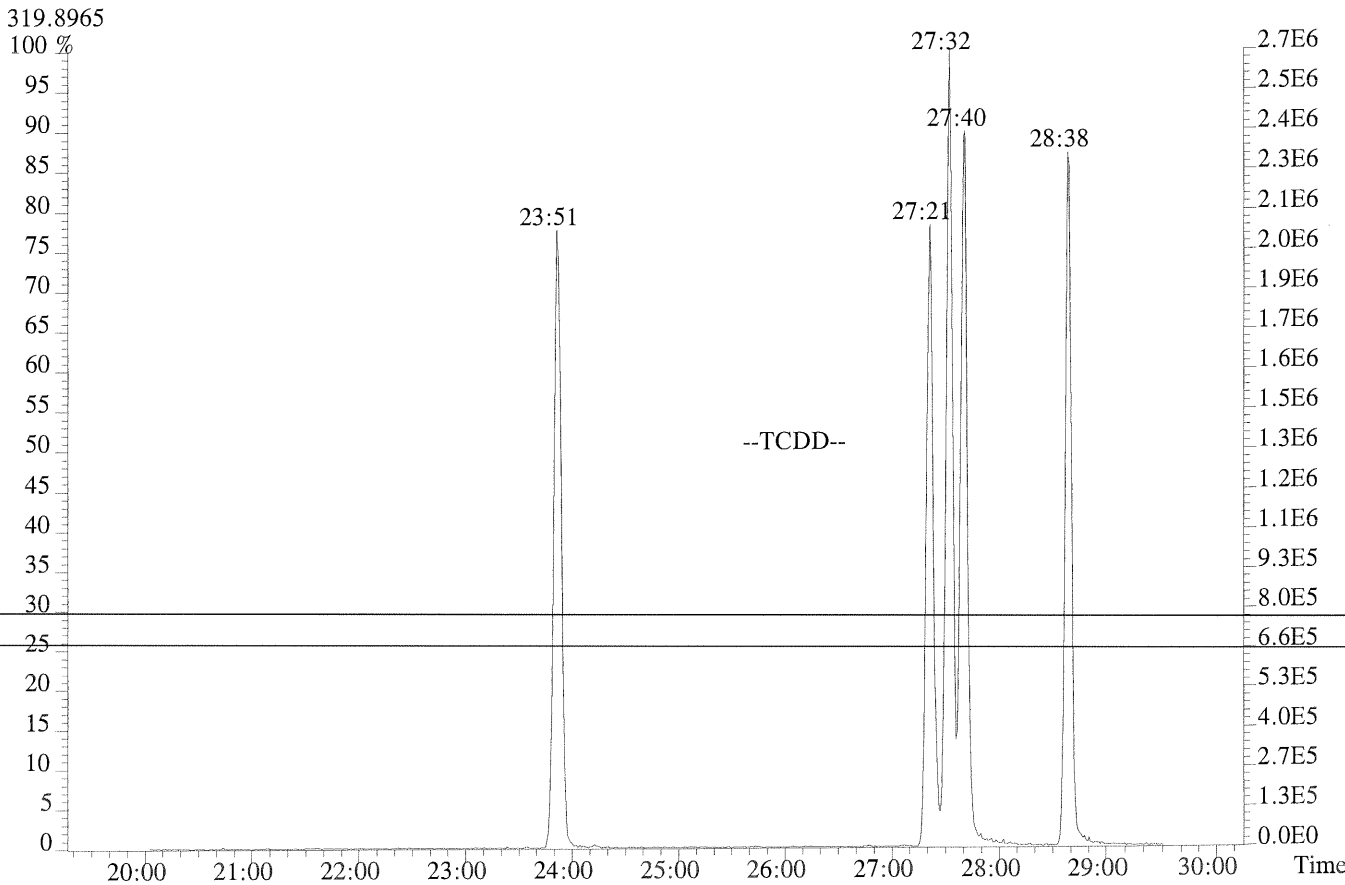
File:P231789 #1-730 Acq: 7-OCT-2014 10:45:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



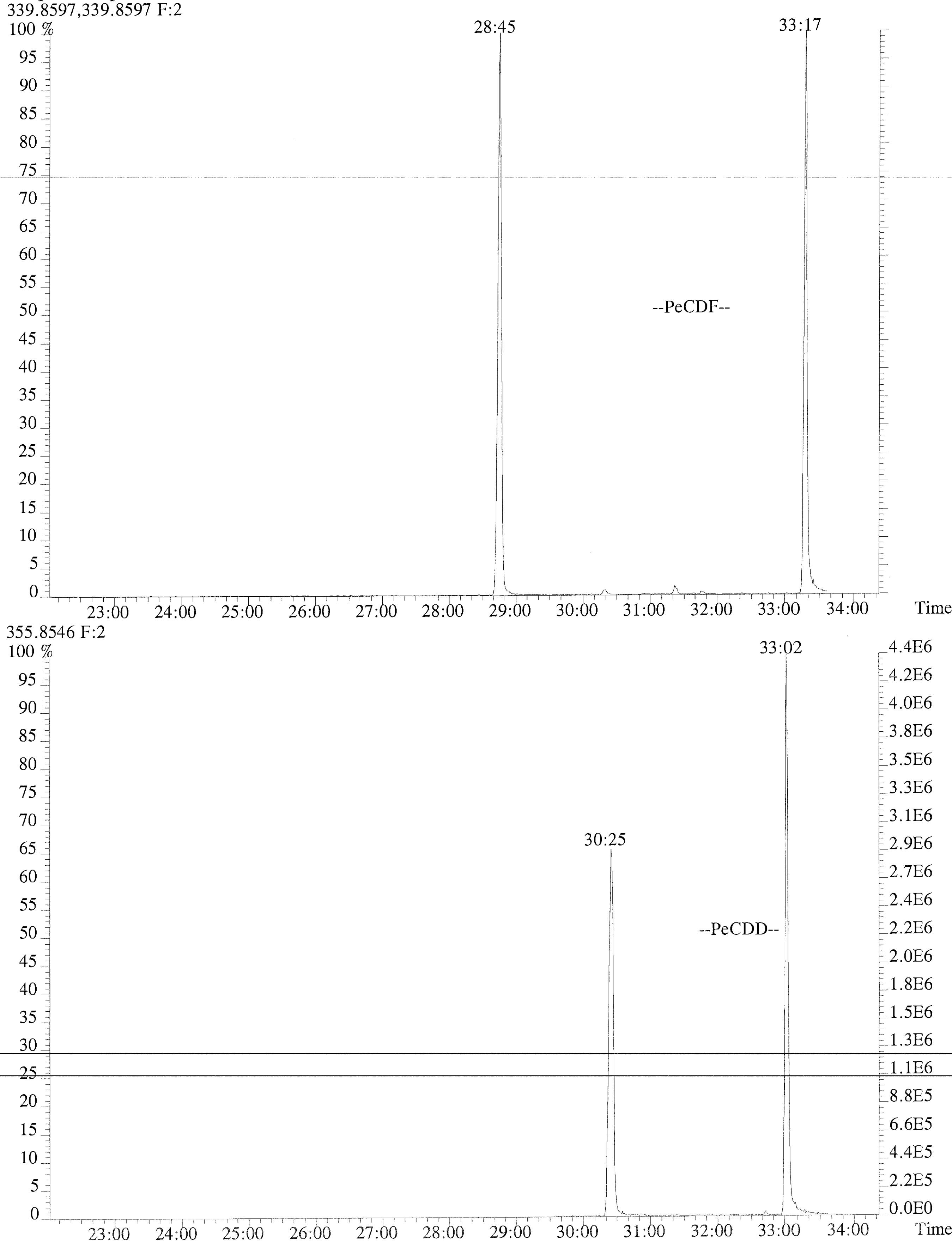


File:P231789 #1-730 Acq: 7-OCT-2014 10:45:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

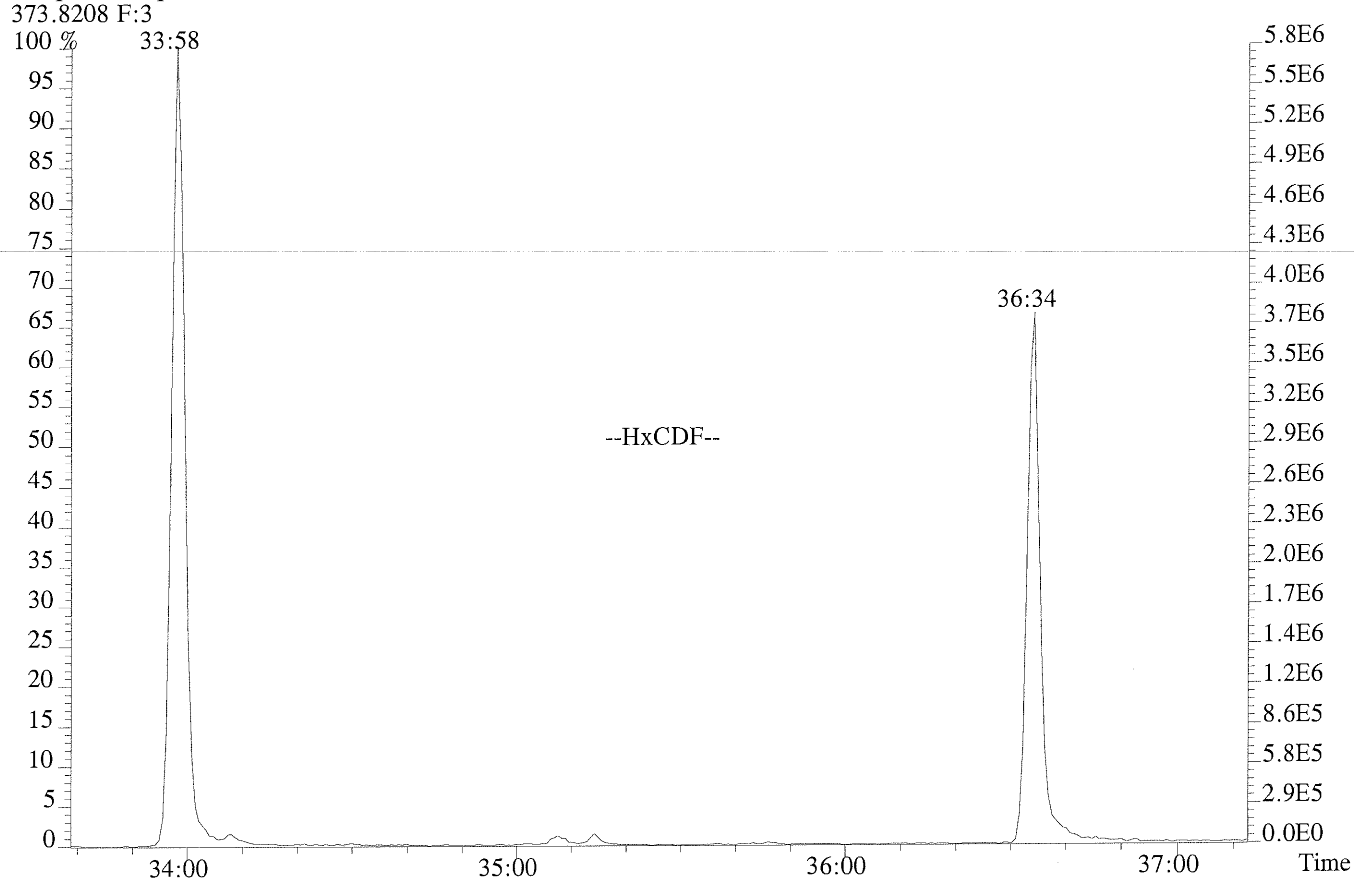


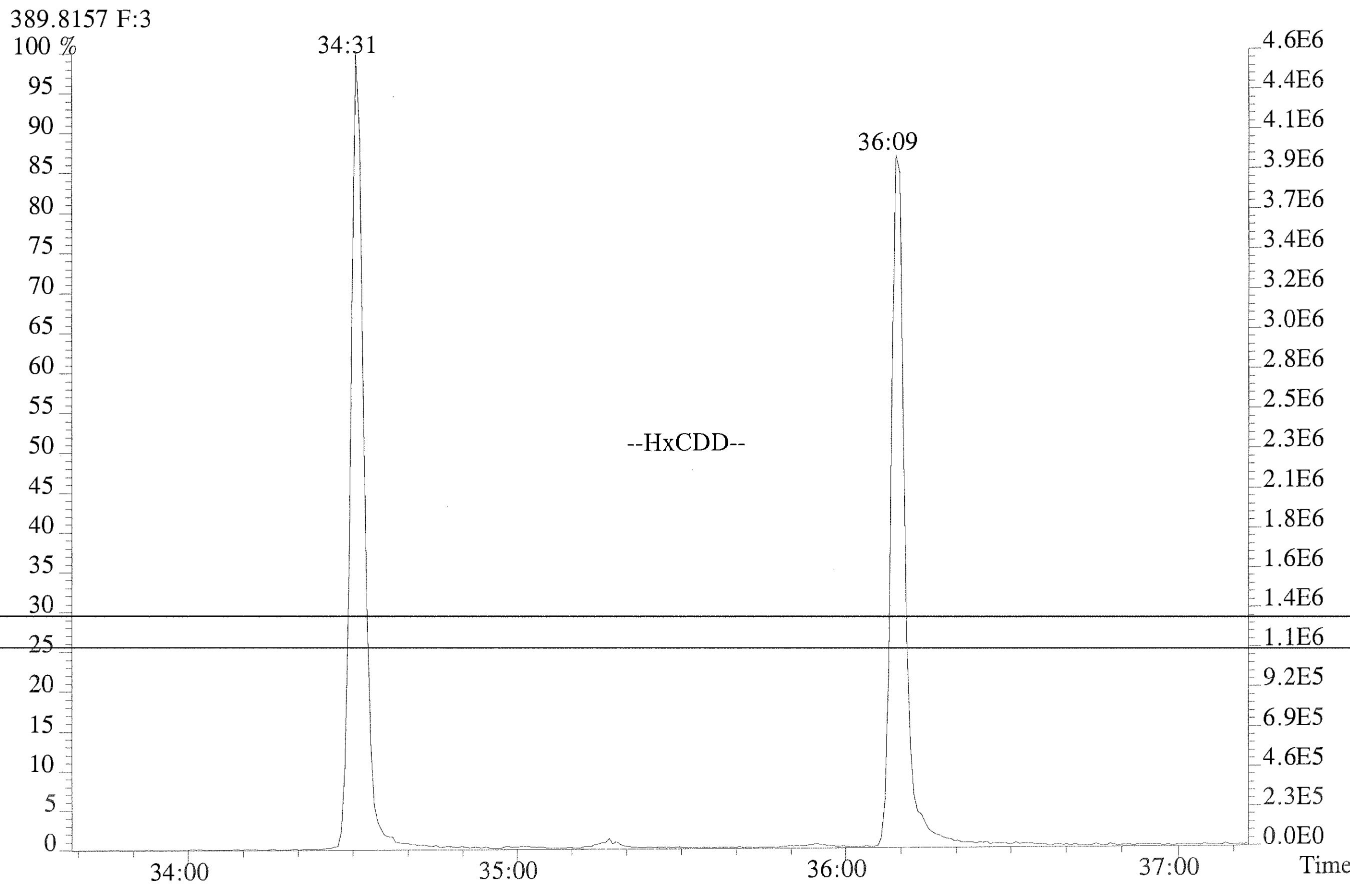


File:P231789 #1-730 Acq: 7-OCT-2014 10:45:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



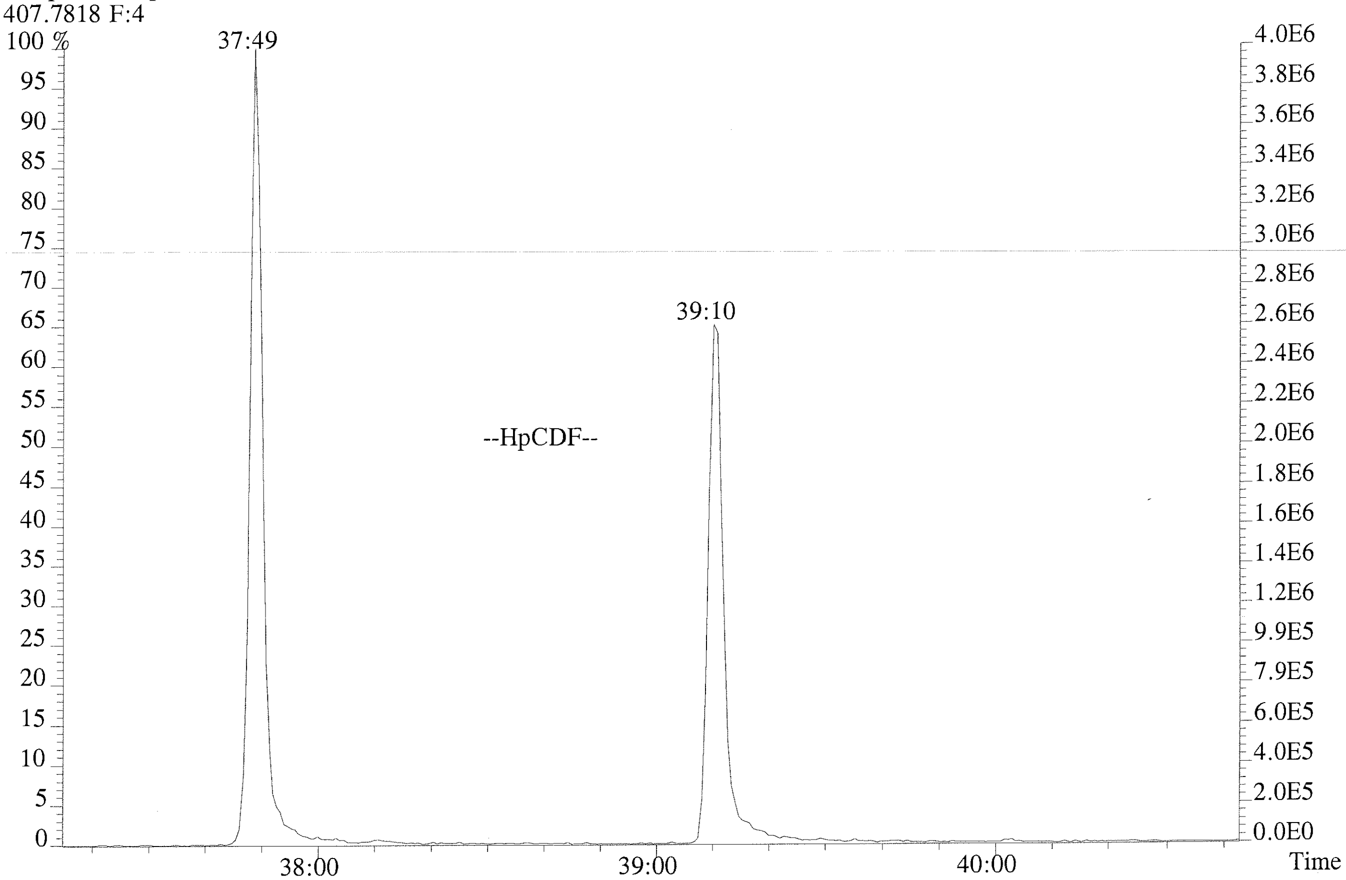
File:P231789 #1-324 Acq: 7-OCT-2014 10:45:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



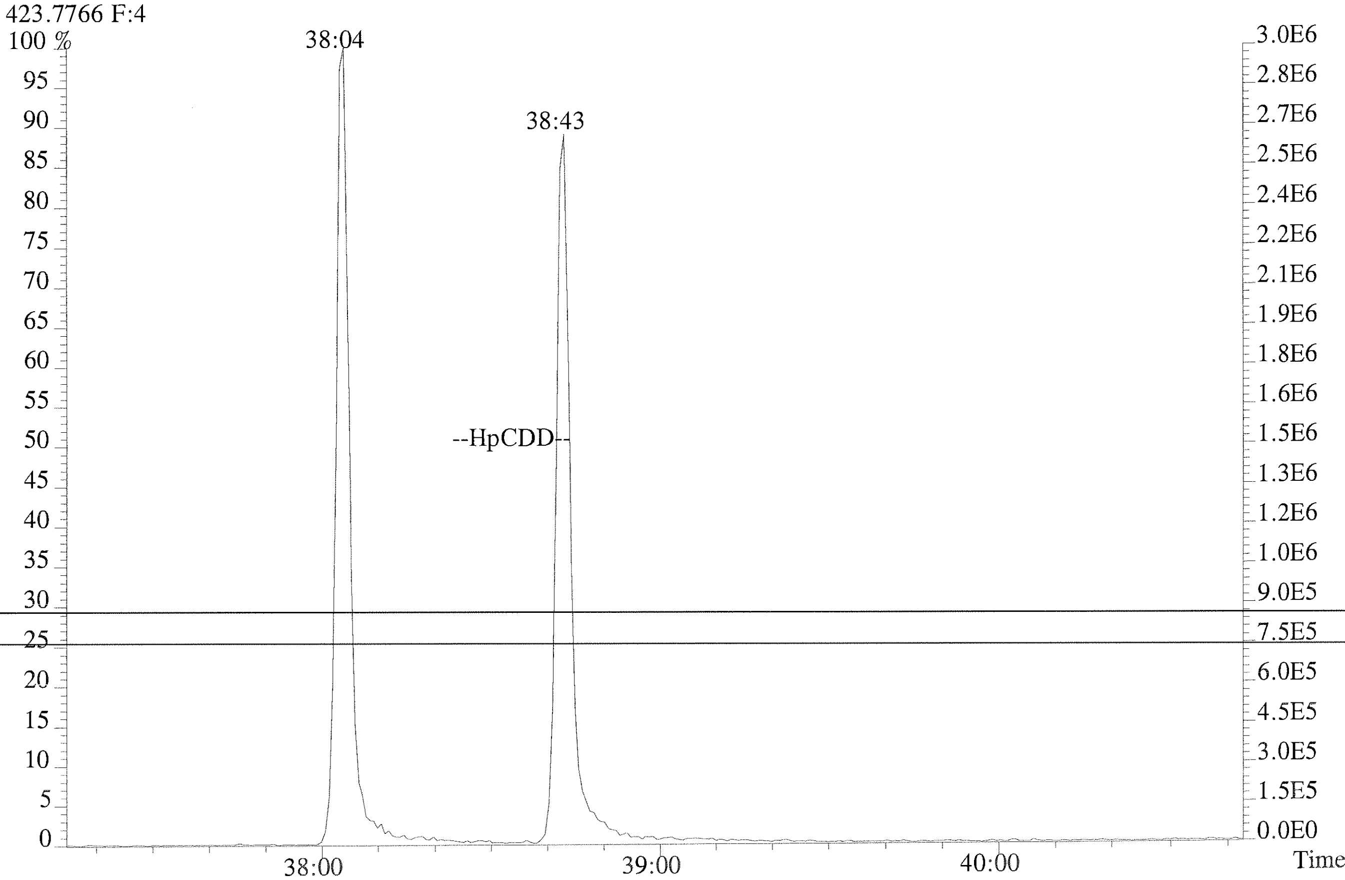


File:P231789 #1-315 Acq: 7-OCT-2014 10:45:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P231790 Analysis Date: 7-OCT-14 Time: 11:34:13

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.9	7.8 - 12.9	-0.5
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	50	39 - 65	0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	2.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	53	39 - 64	6.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	51	41 - 61	1.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.9
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	4.3
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.1	8.4 - 12.0	1.3
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 60	2.8
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	50	41 - 61	-0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	3.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	44 - 57	1.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	3.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	2.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	2.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.0
OCDF	M+2/M+4	0.91	0.76-1.02	114	63 - 159	13.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04   GC Column ID: DB-5MSUI

VER Data Filename: P231790   Analysis Date: 7-OCT-14   Time: 11:34:13

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	82	62 - 160	-17.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	100	85 - 117	0.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	99	85 - 118	-0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	107	72 - 138	7.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	220	96 - 415	9.9
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	97	71 - 140	-2.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	84	76 - 130	-16.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	83	77 - 130	-17.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	100	76 - 131	-0.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	2.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	111	74 - 135	11.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	106	78 - 129	5.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	124	77 - 129	23.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #7 Filename P231790 Samp: 1 Inj: 1 Acquired: 7-OCT-14 11:34:13
Processed: 8-OCT-14 07:06:27 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:46	1.637e+04	2.137e+04	0.77	yes	no	0.986
2	Unk	1,2,3,7,8-PeCDF	31:21	1.322e+05	8.474e+04	1.56	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:19	1.220e+05	7.827e+04	1.56	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:06	1.091e+05	8.675e+04	1.26	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:13	1.142e+05	9.302e+04	1.23	yes	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:45	1.070e+05	8.575e+04	1.25	yes	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:31	9.423e+04	7.501e+04	1.26	yes	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:48	9.075e+04	8.858e+04	1.02	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:09	7.026e+04	6.831e+04	1.03	yes	no	1.274
10	Unk	OCDF	41:31	1.114e+05	1.227e+05	0.91	yes	no	1.195
11	Unk	2,3,7,8-TCDD	27:38	1.222e+04	1.546e+04	0.79	yes	no	1.061
12	Unk	1,2,3,7,8-PeCDD	32:37	8.762e+04	5.434e+04	1.61	yes	no	0.992
13	Unk	1,2,3,4,7,8-HxCDD	35:53	8.027e+04	6.372e+04	1.26	yes	no	1.118
14	Unk	1,2,3,6,7,8-HxCDD	35:58	8.096e+04	6.404e+04	1.26	yes	no	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:13	8.349e+04	6.748e+04	1.24	yes	no	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:42	6.742e+04	6.496e+04	1.04	yes	no	1.053
17	Unk	OCDD	41:20	9.928e+04	1.103e+05	0.90	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	26:44	1.694e+05	2.086e+05	0.81	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:20	2.601e+05	1.620e+05	1.61	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:18	2.540e+05	1.599e+05	1.59	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:06	1.092e+05	2.078e+05	0.53	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	1.226e+05	2.377e+05	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:44	1.154e+05	2.222e+05	0.52	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:30	9.944e+04	1.904e+05	0.52	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:47	8.078e+04	1.793e+05	0.45	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:09	6.699e+04	1.484e+05	0.45	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:37	1.158e+05	1.465e+05	0.79	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:36	1.745e+05	1.094e+05	1.60	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	35:53	1.398e+05	1.109e+05	1.26	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	35:58	1.390e+05	1.116e+05	1.24	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:41	1.282e+05	1.186e+05	1.08	yes	no	0.850
32	IS	13C-OCDD	41:19	1.639e+05	1.800e+05	0.91	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	26:58	1.181e+05	1.484e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:12	1.500e+05	1.204e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:38	2.825e+04				no	1.099

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #7 Filename P231790 Samp: 1 Inj: 1 Acquired: 7-OCT-14 11:34:13
Processed: 8-OCT-14 07:06:271 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.56e+06	9.28e+02	2.8e+03	3.35e+06	3.02e+03	1.1e+03
2	1,2,3,7,8-PeCDF	2.45e+07	1.55e+03	1.6e+04	1.58e+07	2.21e+03	7.1e+03
3	2,3,4,7,8-PeCDF	2.37e+07	1.55e+03	1.5e+04	1.53e+07	2.21e+03	6.9e+03
4	1,2,3,4,7,8-HxCDF	2.34e+07	2.00e+03	1.2e+04	1.89e+07	1.19e+03	1.6e+04
5	1,2,3,6,7,8-HxCDF	2.36e+07	2.00e+03	1.2e+04	1.91e+07	1.19e+03	1.6e+04
6	2,3,4,6,7,8-HxCDF	2.25e+07	2.00e+03	1.1e+04	1.82e+07	1.19e+03	1.5e+04
7	1,2,3,7,8,9-HxCDF	1.95e+07	2.00e+03	9.8e+03	1.56e+07	1.19e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.96e+07	4.73e+03	4.1e+03	1.93e+07	8.86e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+07	4.73e+03	3.0e+03	1.36e+07	8.86e+03	1.5e+03
10	OCDF	1.93e+07	9.27e+03	2.1e+03	2.17e+07	1.09e+04	2.0e+03
11	2,3,7,8-TCDD	2.05e+06	1.73e+03	1.2e+03	2.57e+06	1.51e+03	1.7e+03
12	1,2,3,7,8-PeCDD	1.69e+07	1.42e+03	1.2e+04	1.04e+07	3.48e+02	3.0e+04
13	1,2,3,4,7,8-HxCDD	1.75e+07	7.44e+02	2.4e+04	1.37e+07	1.55e+03	8.8e+03
14	1,2,3,6,7,8-HxCDD	1.68e+07	7.44e+02	2.3e+04	1.33e+07	1.55e+03	8.6e+03
15	1,2,3,7,8,9-HxCDD	1.76e+07	7.44e+02	2.4e+04	1.41e+07	1.55e+03	9.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.43e+07	1.61e+03	8.9e+03	1.39e+07	1.87e+03	7.4e+03
17	OCDD	1.81e+07	3.11e+03	5.8e+03	2.00e+07	8.04e+03	2.5e+03
18	13C-2,3,7,8-TCDF	2.69e+07	2.83e+03	9.5e+03	3.32e+07	1.81e+03	1.8e+04
19	13C-1,2,3,7,8-PeCDF	4.74e+07	4.16e+02	1.1e+05	2.94e+07	1.40e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	5.06e+07	4.16e+02	1.2e+05	3.17e+07	1.40e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.38e+07	1.38e+03	1.7e+04	4.60e+07	2.67e+03	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	2.58e+07	1.38e+03	1.9e+04	4.97e+07	2.67e+03	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	2.46e+07	1.38e+03	1.8e+04	4.77e+07	2.67e+03	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	2.09e+07	1.38e+03	1.5e+04	3.99e+07	2.67e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.79e+07	6.09e+03	2.9e+03	3.92e+07	2.49e+04	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.39e+07	6.09e+03	2.3e+03	3.04e+07	2.49e+04	1.2e+03
27	13C-2,3,7,8-TCDD	1.96e+07	9.78e+03	2.0e+03	2.47e+07	4.14e+03	6.0e+03
28	13C-1,2,3,7,8-PeCDD	3.45e+07	1.82e+03	1.9e+04	2.18e+07	1.06e+03	2.1e+04
29	13C-1,2,3,4,7,8-HxCDD	3.06e+07	2.30e+03	1.3e+04	2.38e+07	1.71e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	2.91e+07	2.30e+03	1.3e+04	2.30e+07	1.71e+03	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.79e+07	2.95e+03	9.5e+03	2.59e+07	8.32e+02	3.1e+04
32	13C-OCDD	3.05e+07	1.27e+04	2.4e+03	3.35e+07	1.38e+04	2.4e+03
33	13C-1,2,3,4-TCDD	1.94e+07	9.78e+03	2.0e+03	2.45e+07	4.14e+03	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.17e+07	2.30e+03	1.4e+04	2.52e+07	1.71e+03	1.5e+04
35	37Cl-2,3,7,8-TCDD	4.73e+06	2.22e+03	2.1e+03			

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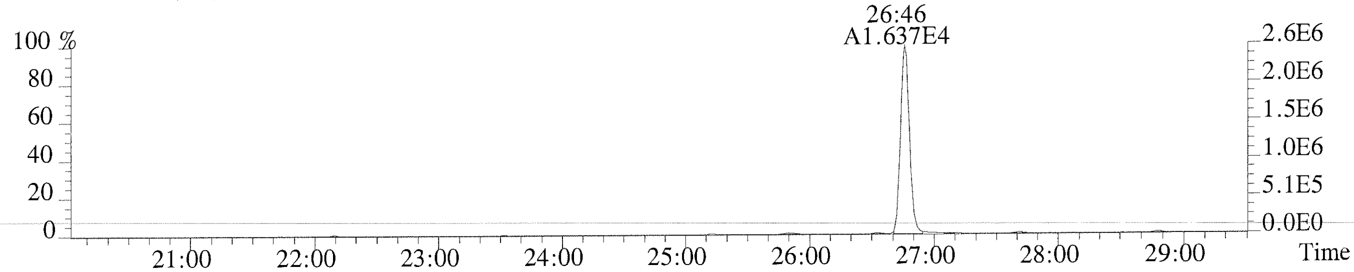
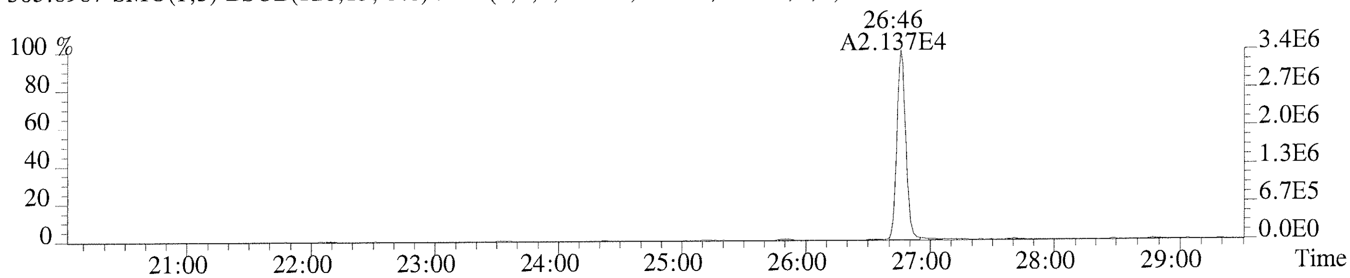
File:P231790 #1-730 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

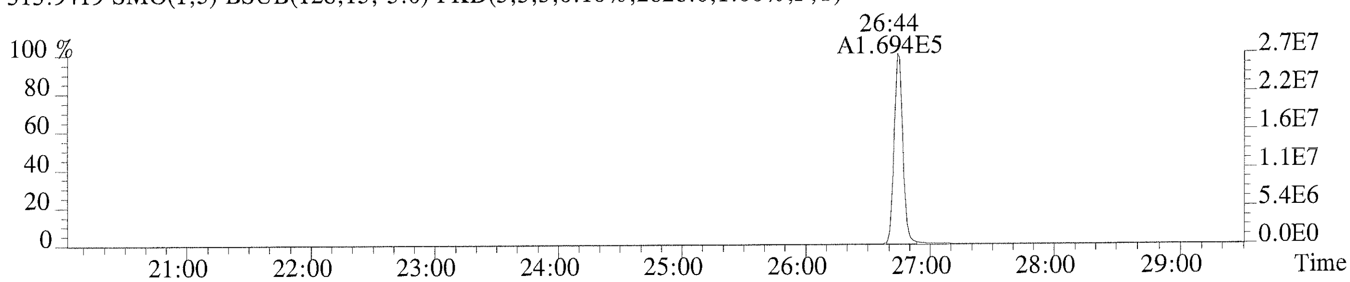
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



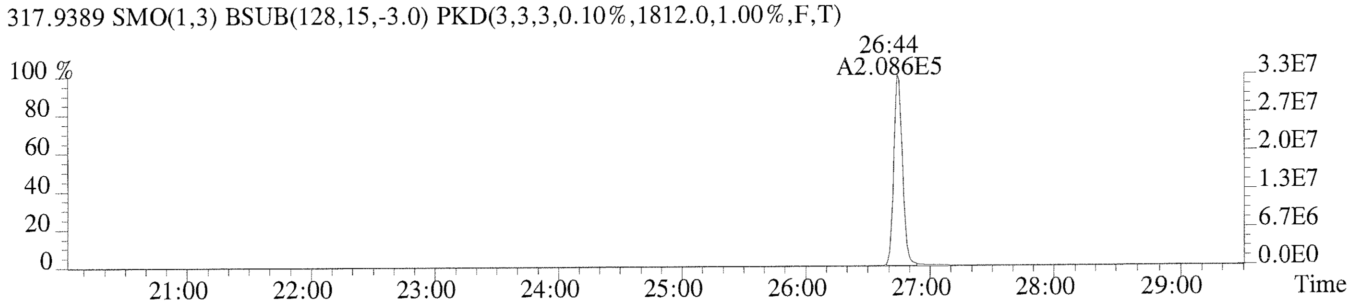
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3024.0,1.00%,F,T)



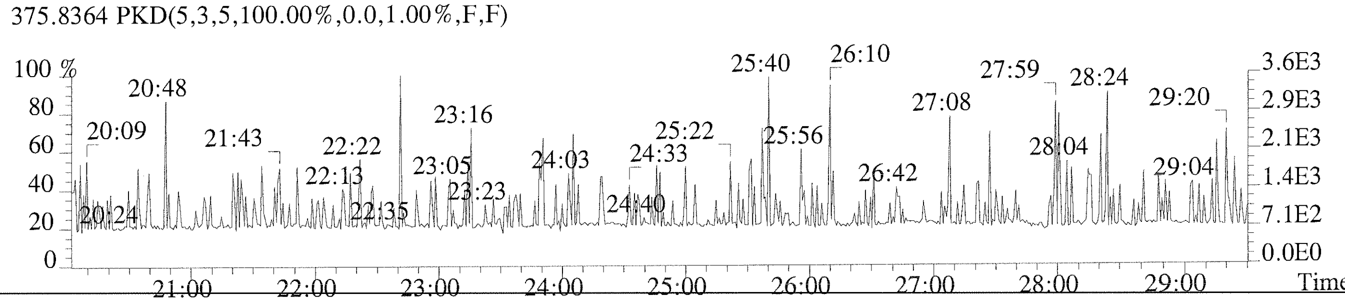
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2828.0,1.00%,F,T)



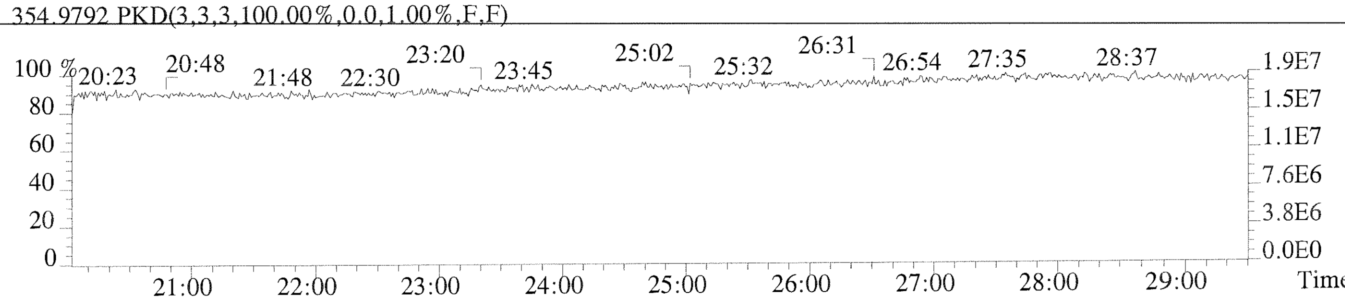
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

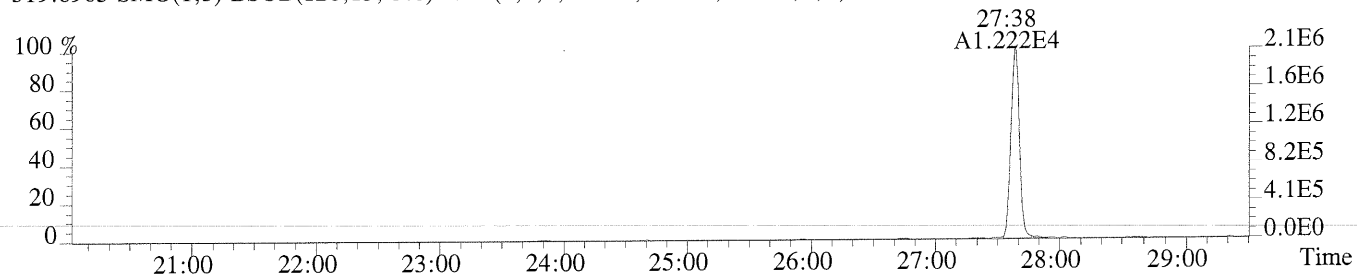


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

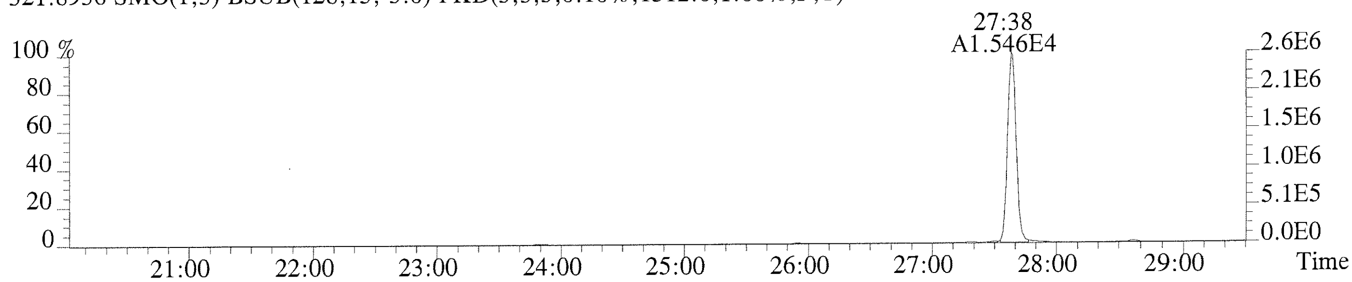


File:P231790 #1-730 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

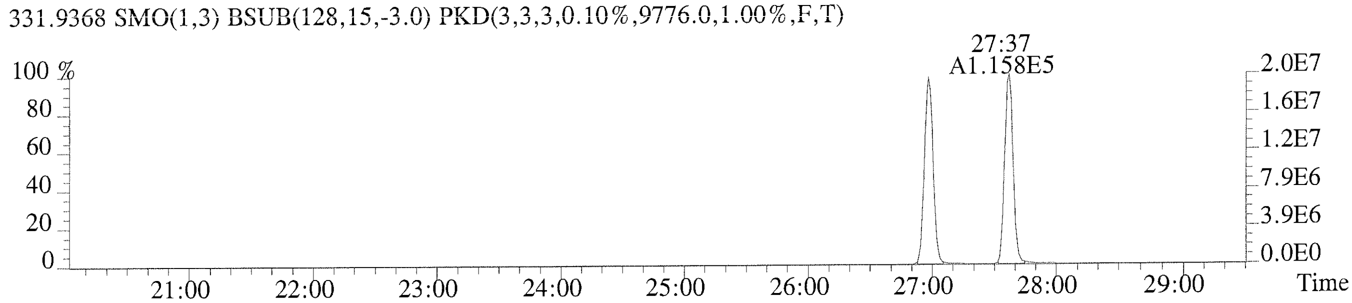
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



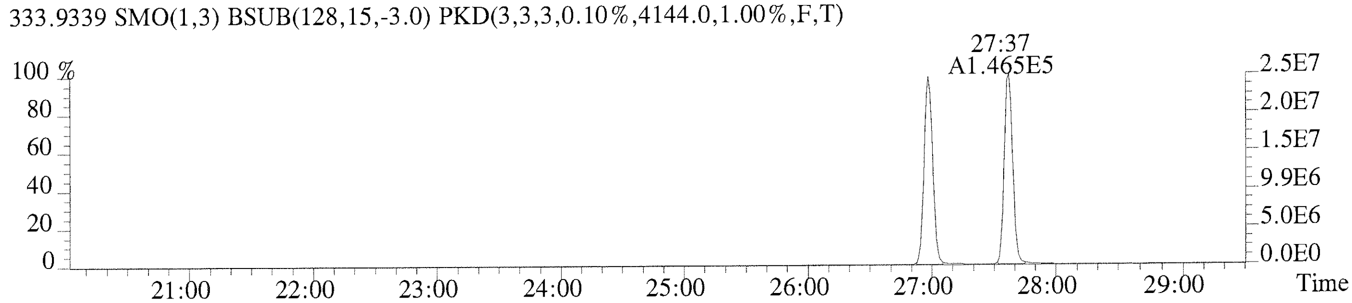
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



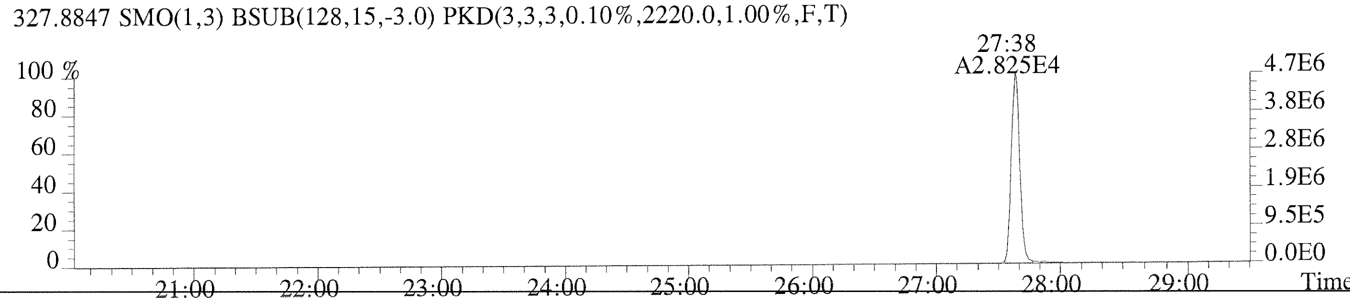
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9776.0,1.00%,F,T)



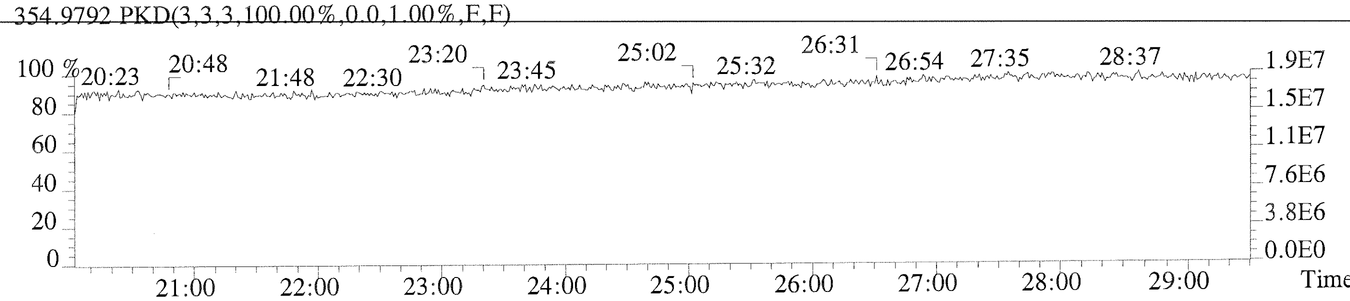
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2220.0,1.00%,F,T)

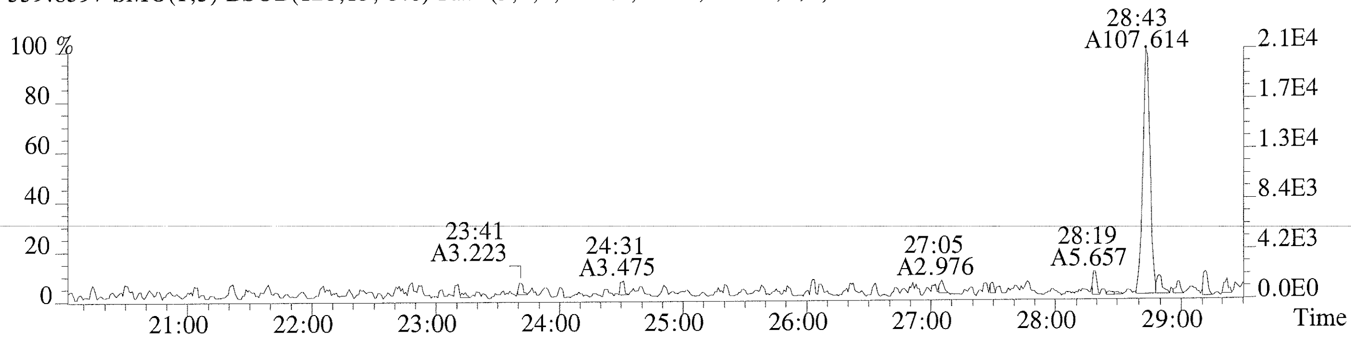


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

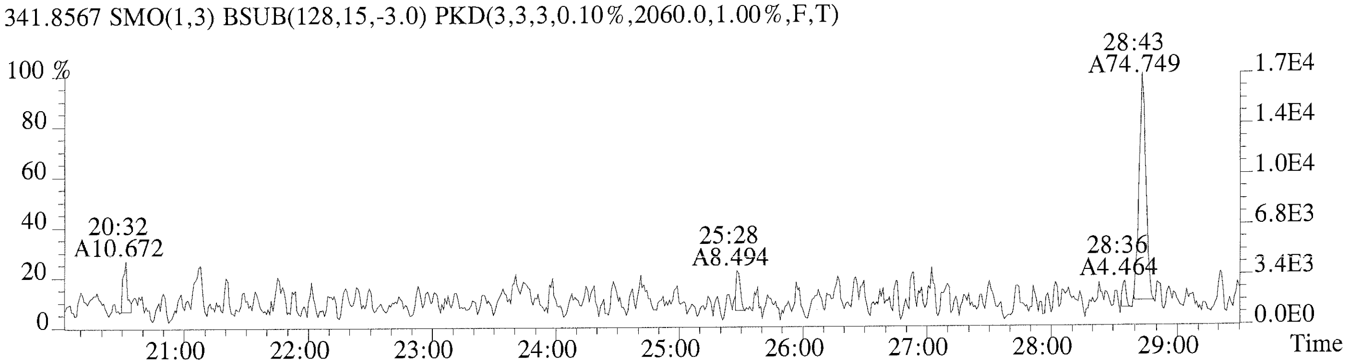


File:P231790 #1-730 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

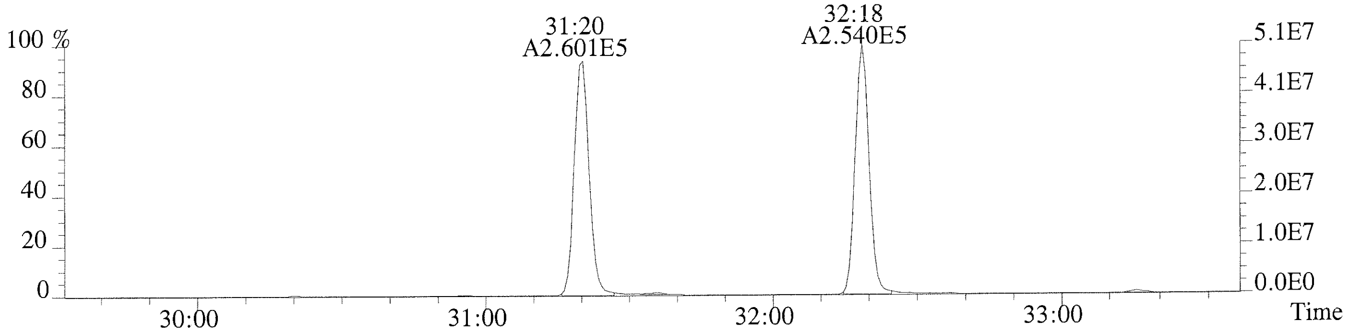
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



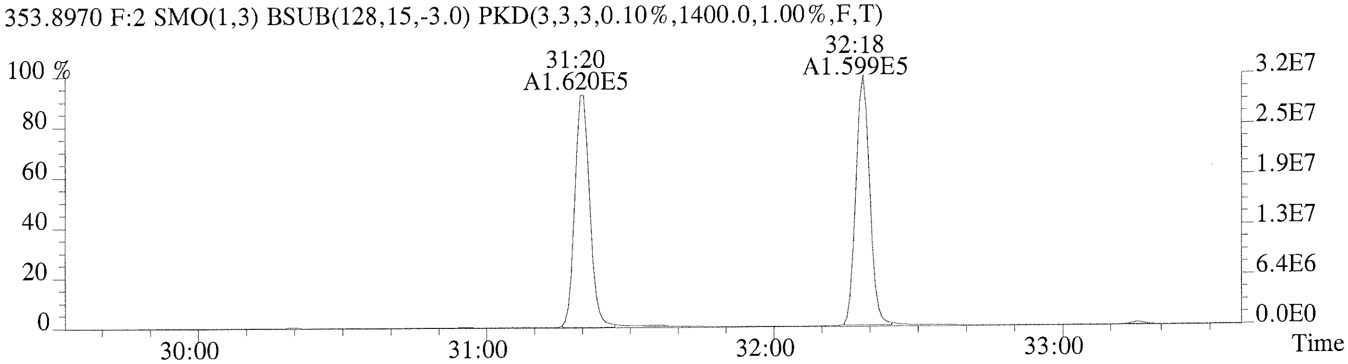
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



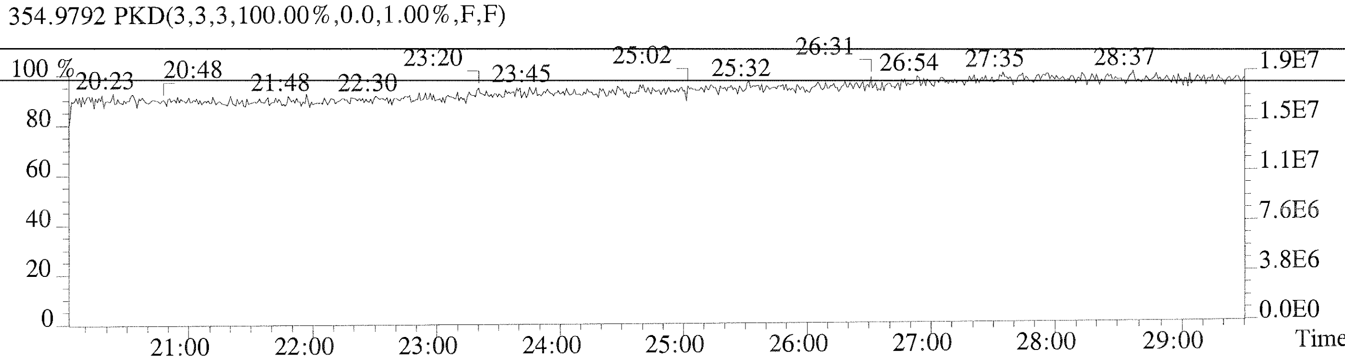
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



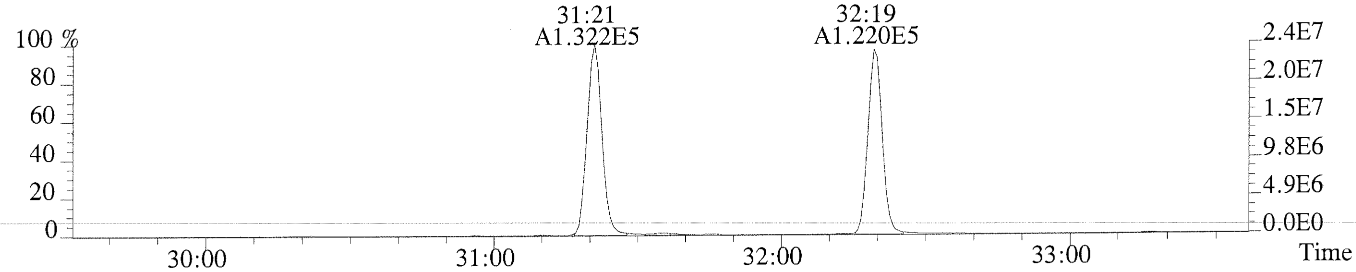
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



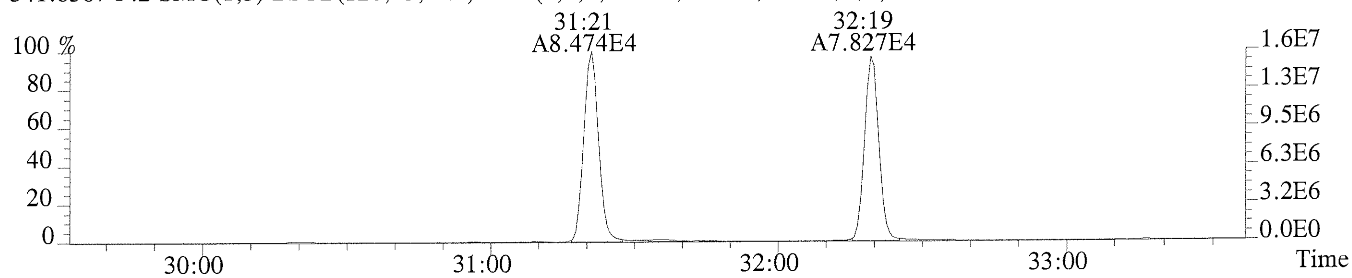
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



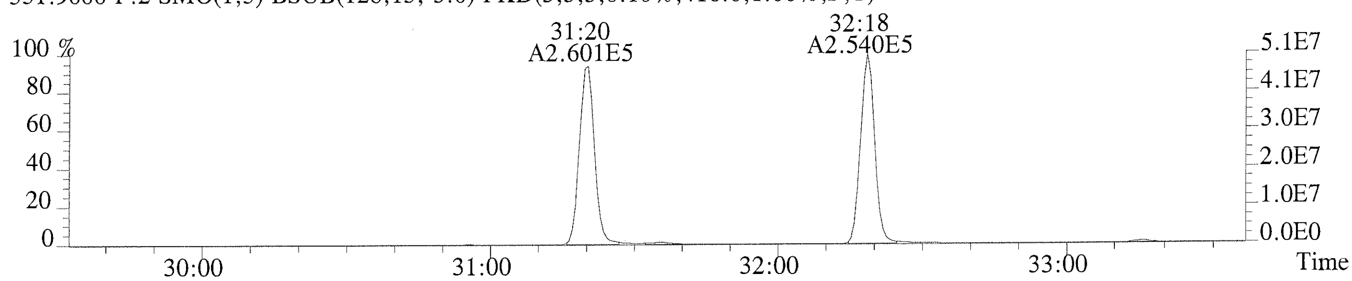
File:P231790 #1-370 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



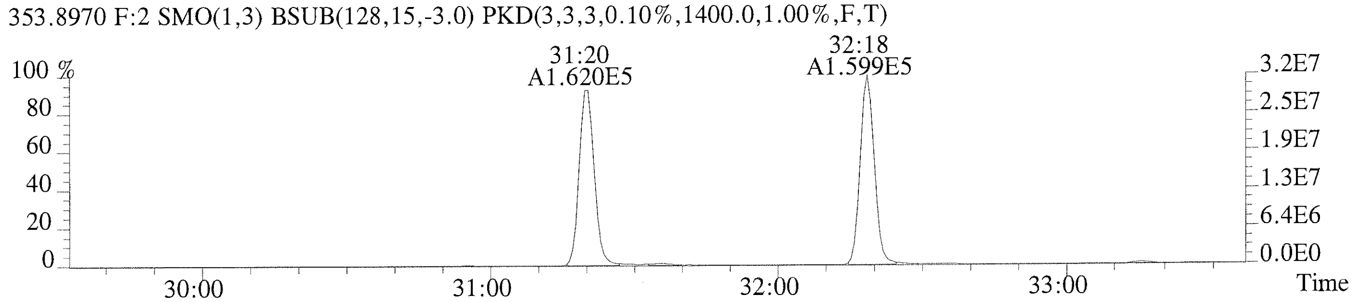
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



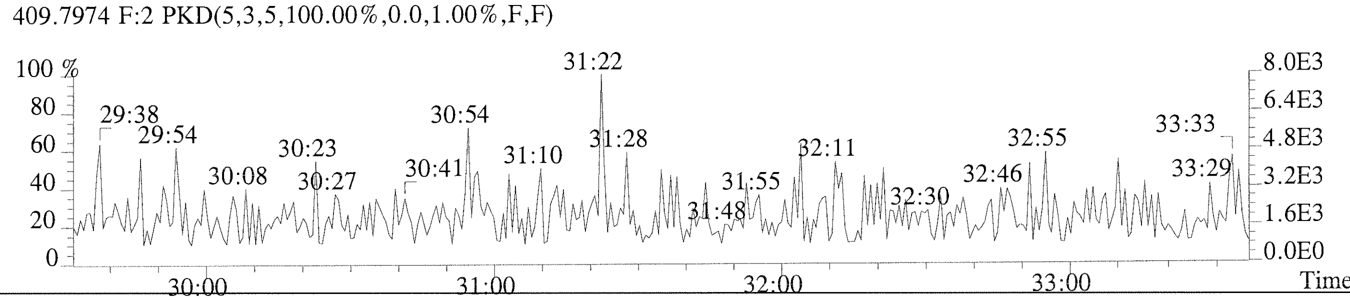
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



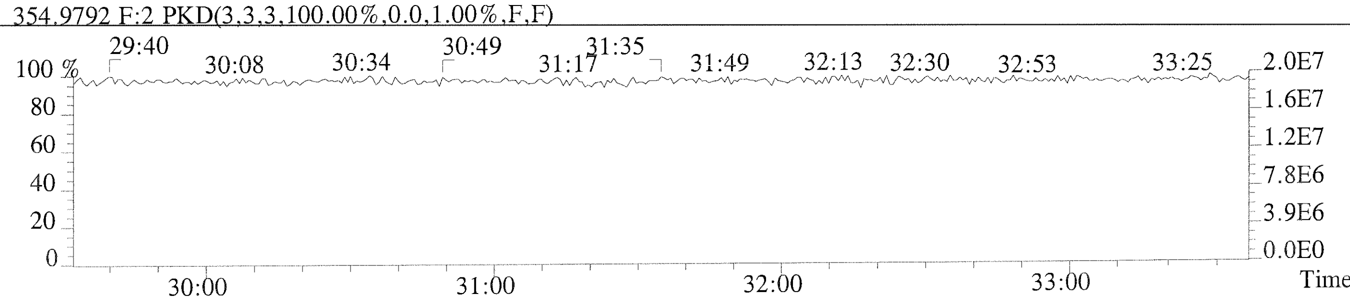
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

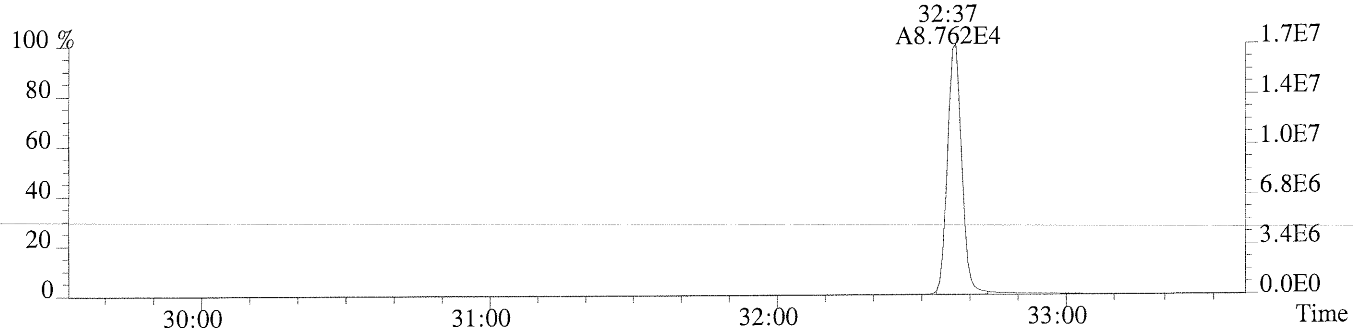


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

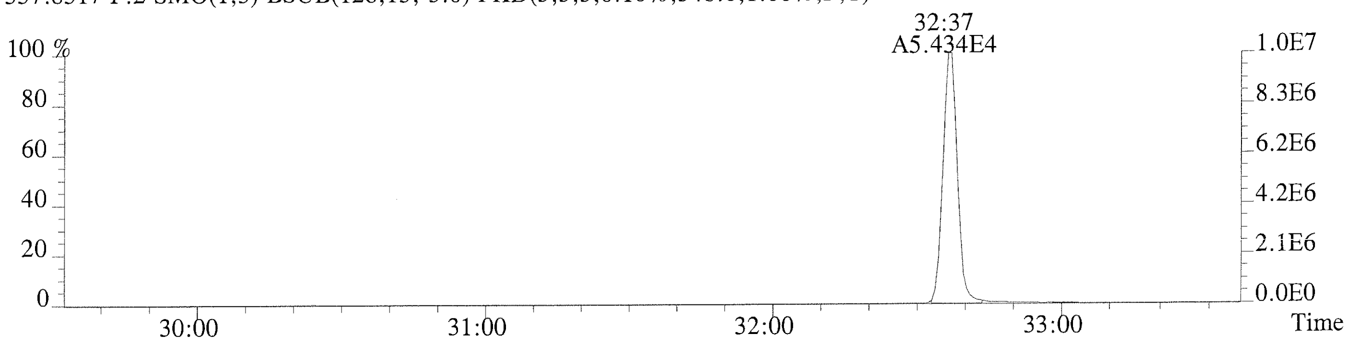


File:P231790 #1-370 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

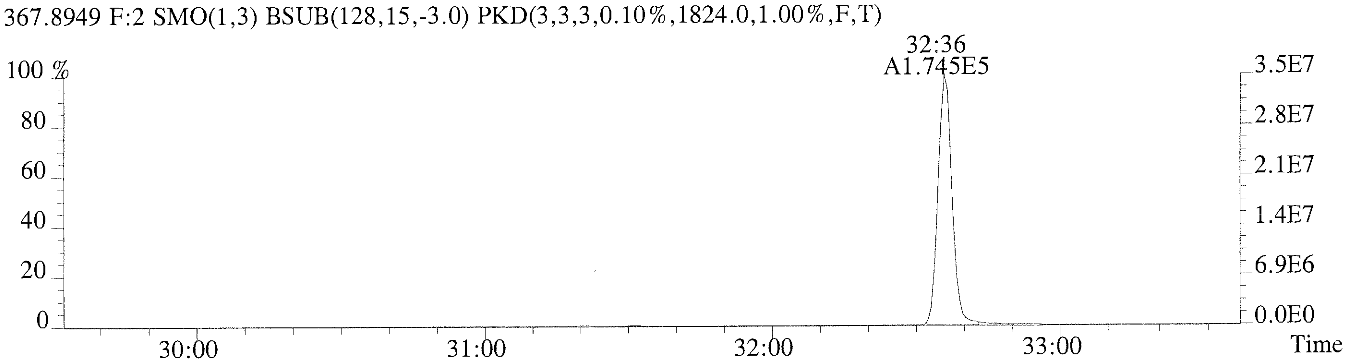
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



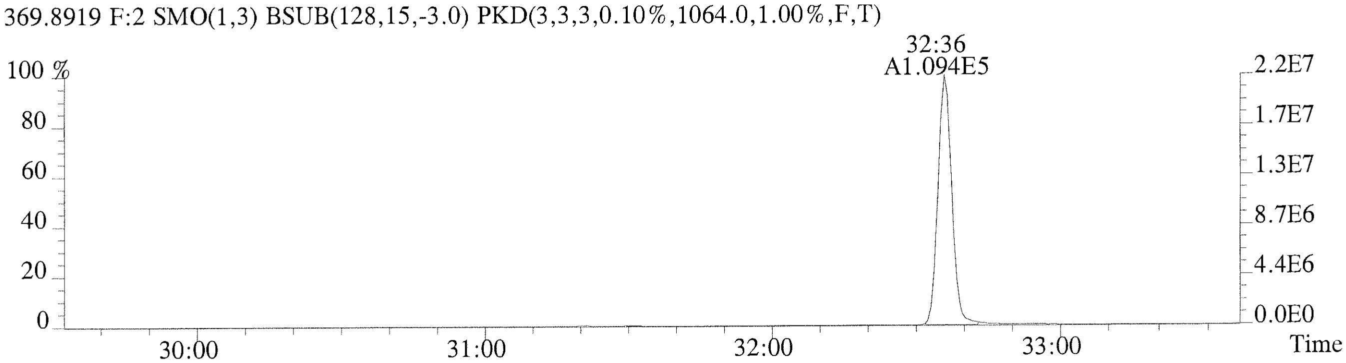
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



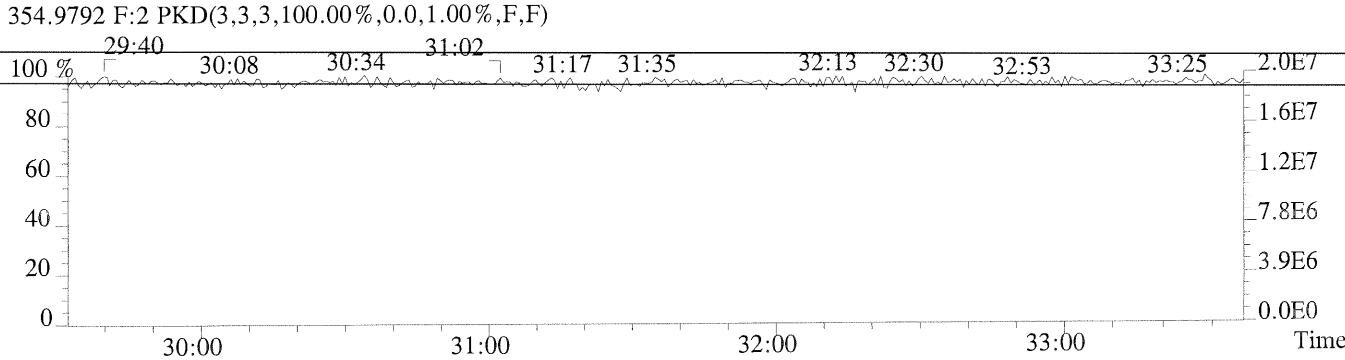
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

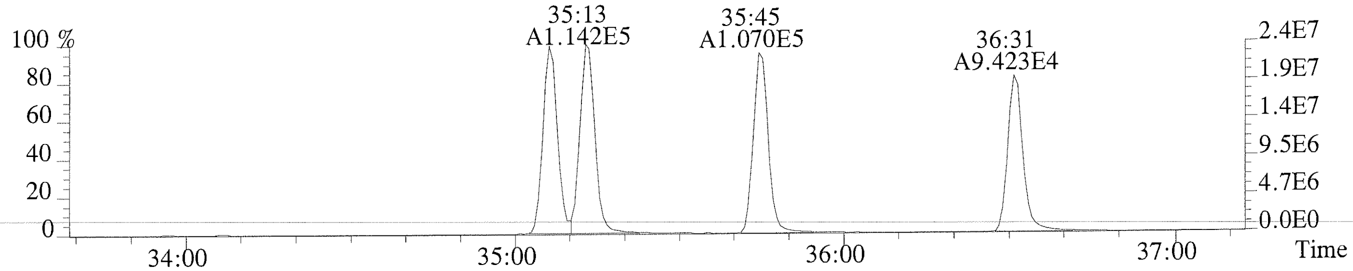


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

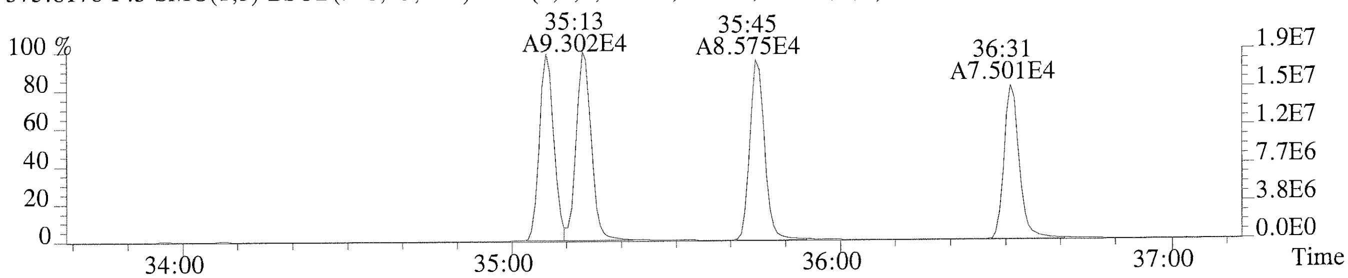


File:P231790 #1-324 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

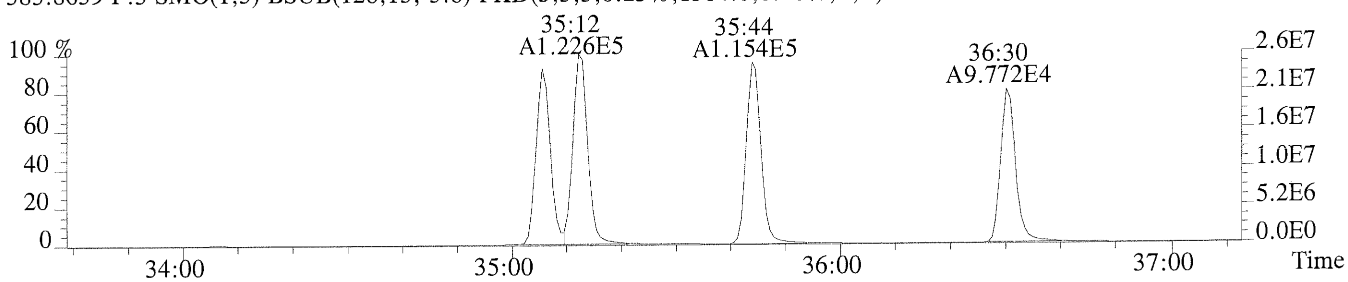
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



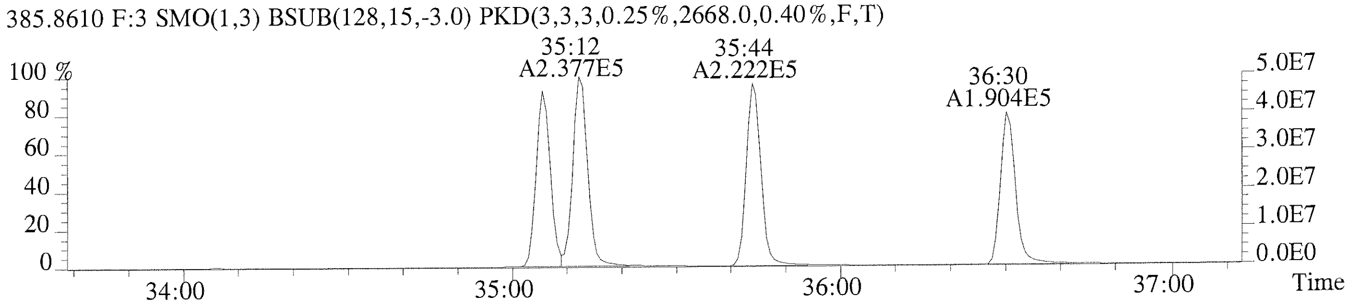
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



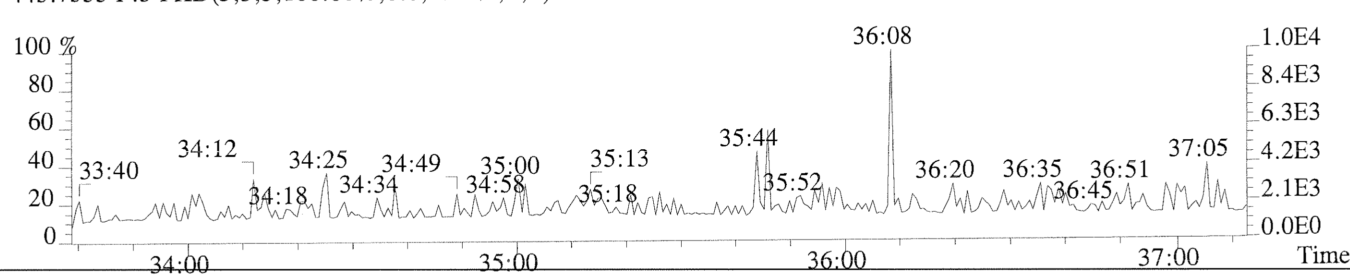
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



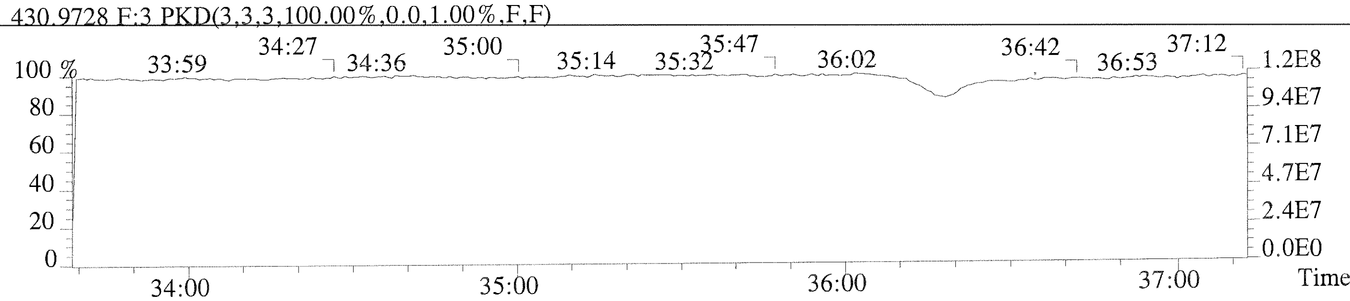
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.40%,F,T)



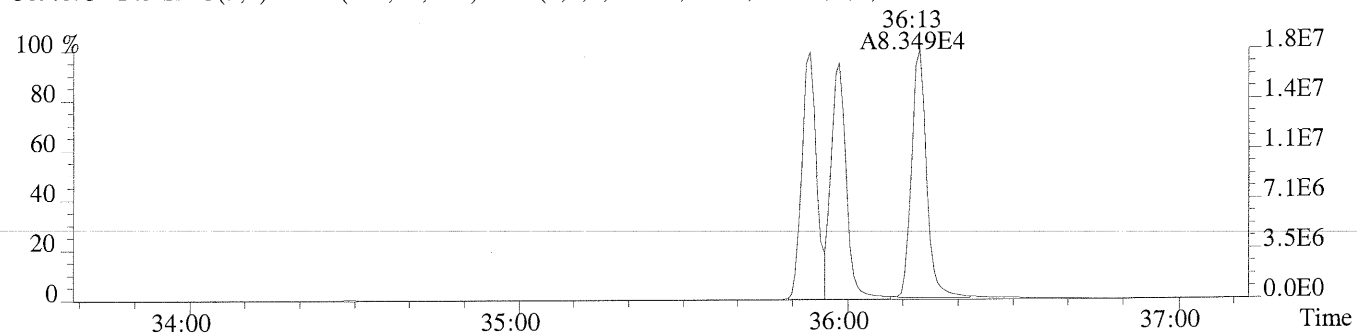
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



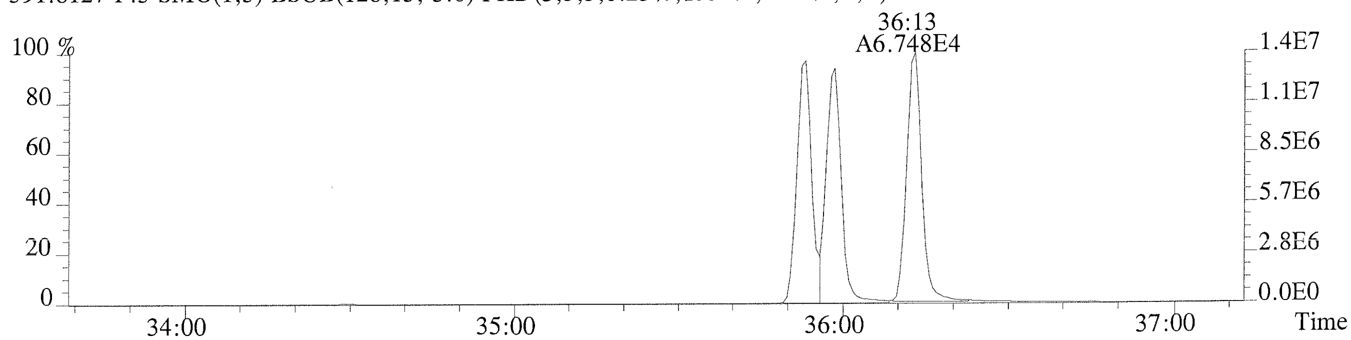
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



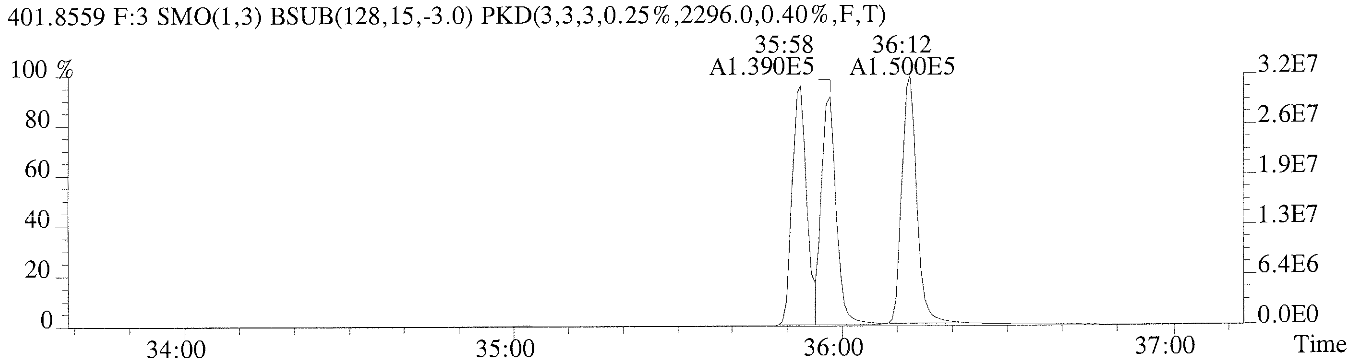
File:P231790 #1-324 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



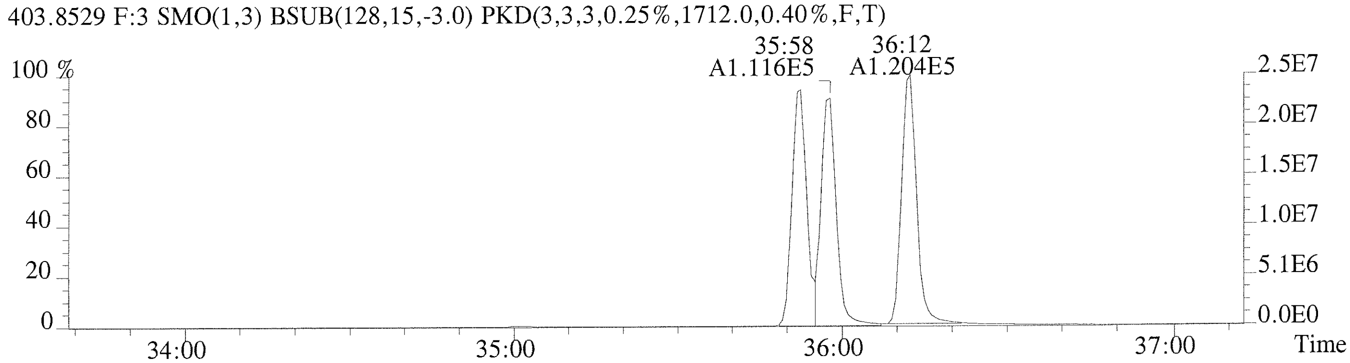
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1552.0,0.40%,F,T)



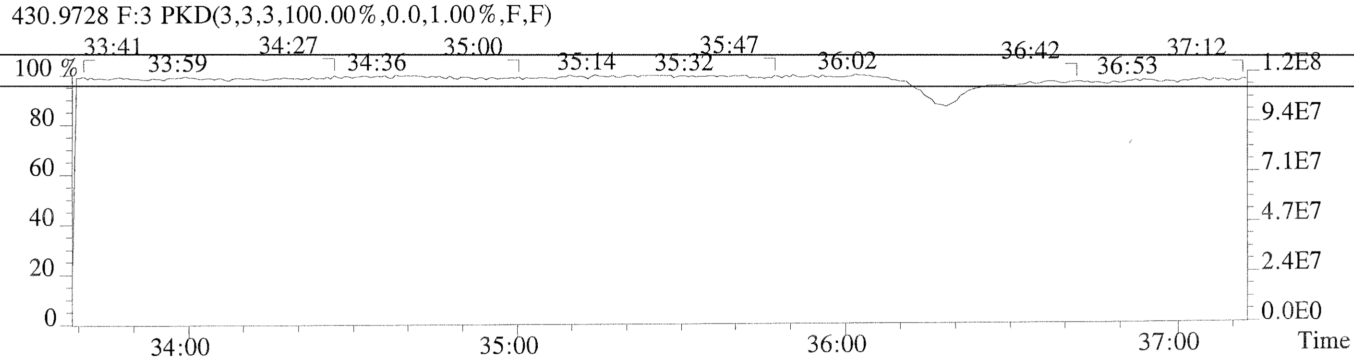
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

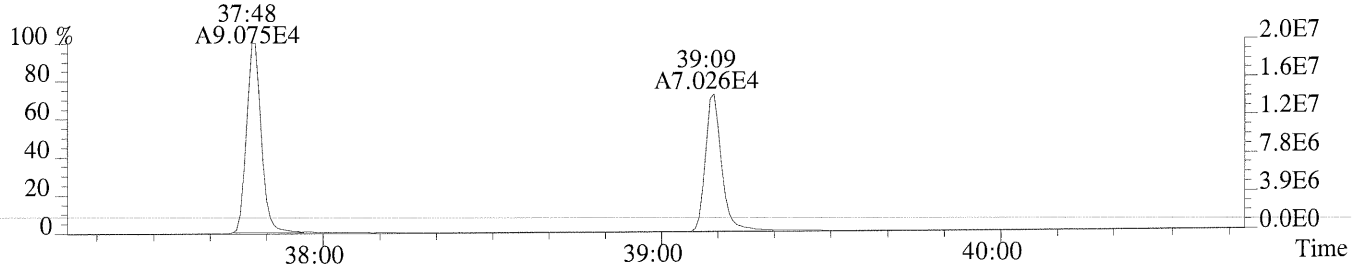


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

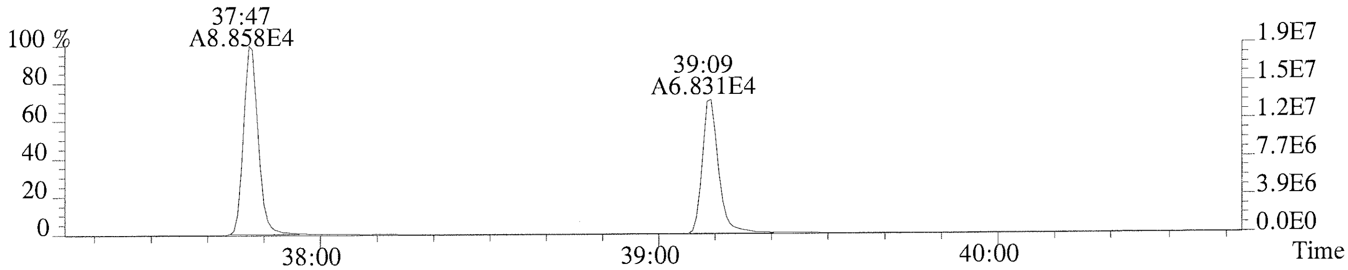


File:P231790 #1-315 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

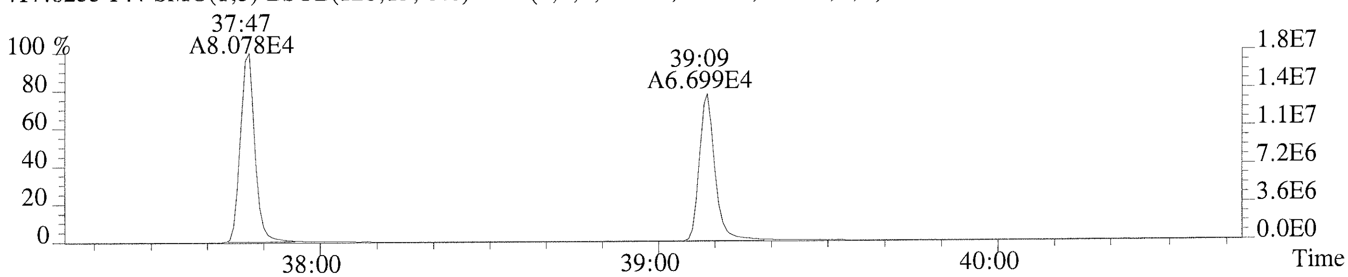
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



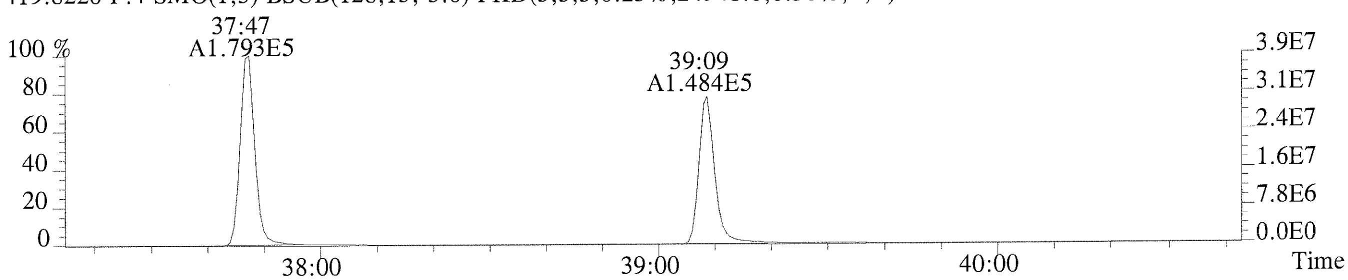
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8864.0,0.50%,F,T)



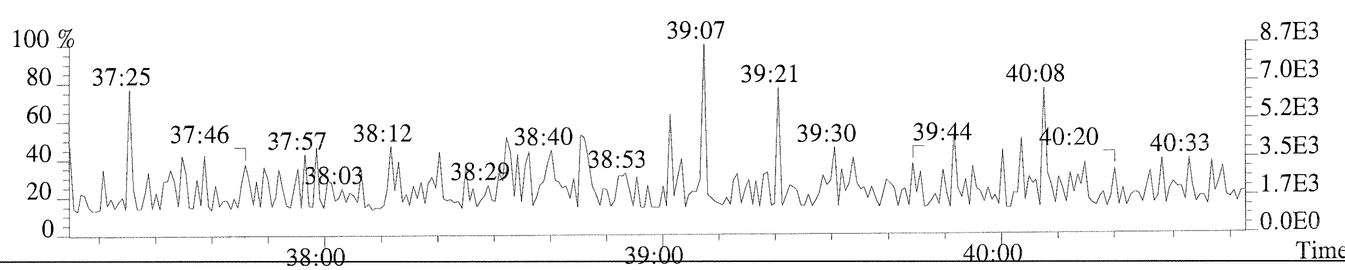
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6088.0,0.50%,F,T)



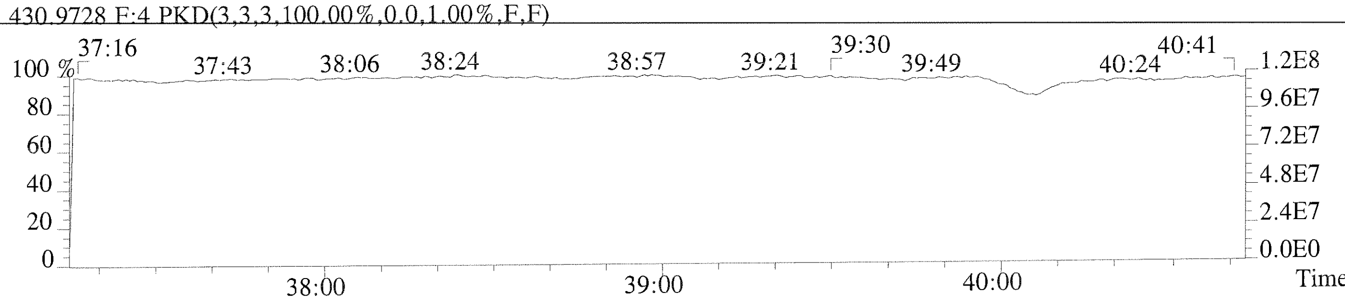
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24948.0,0.50%,F,T)



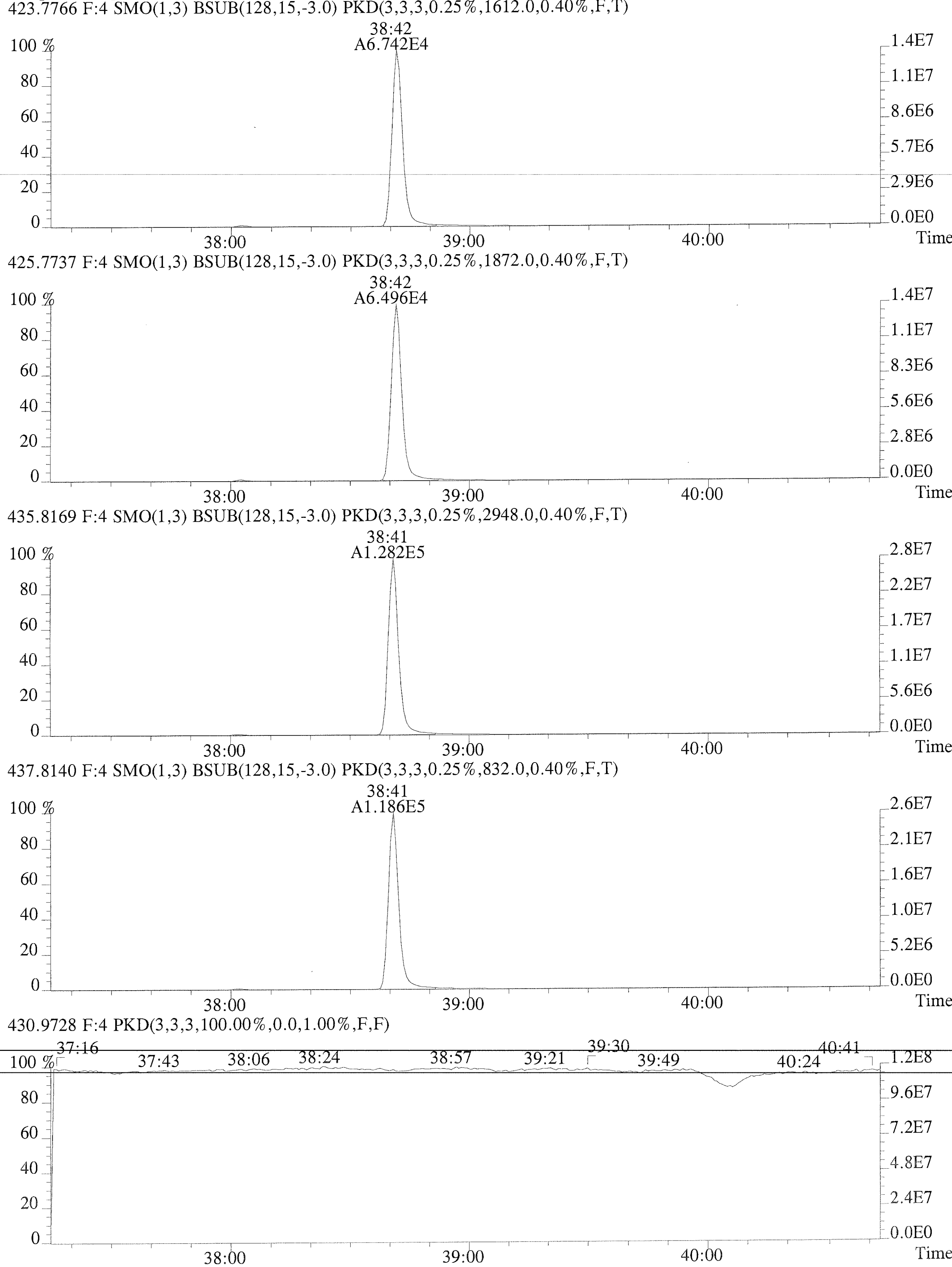
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



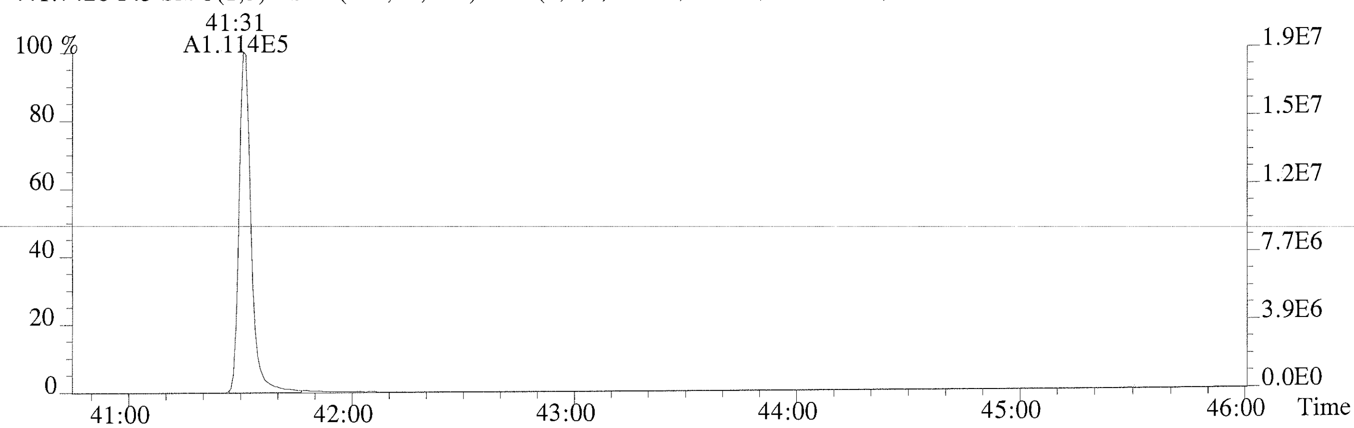
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



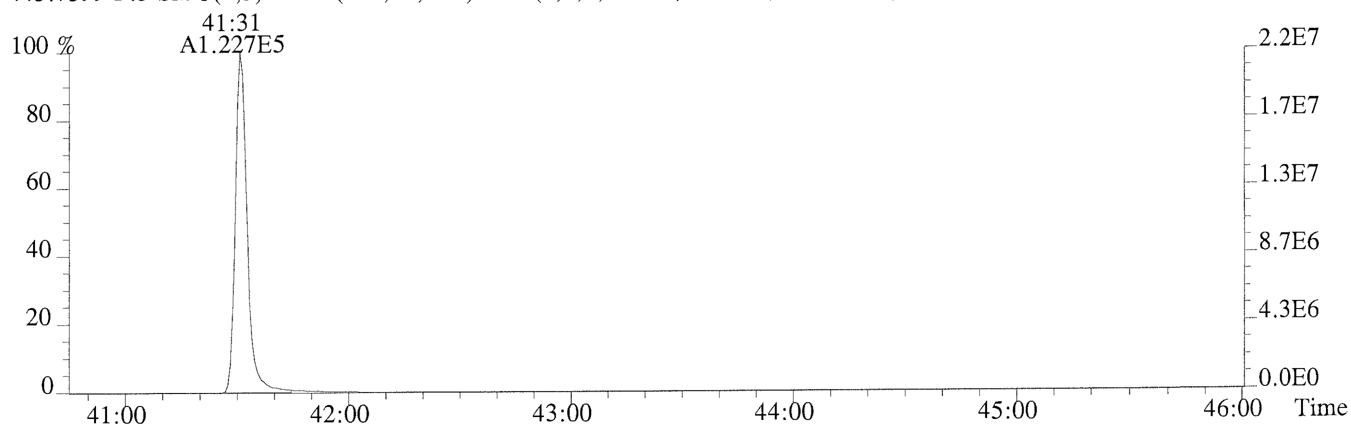
File:P231790 #1-315 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



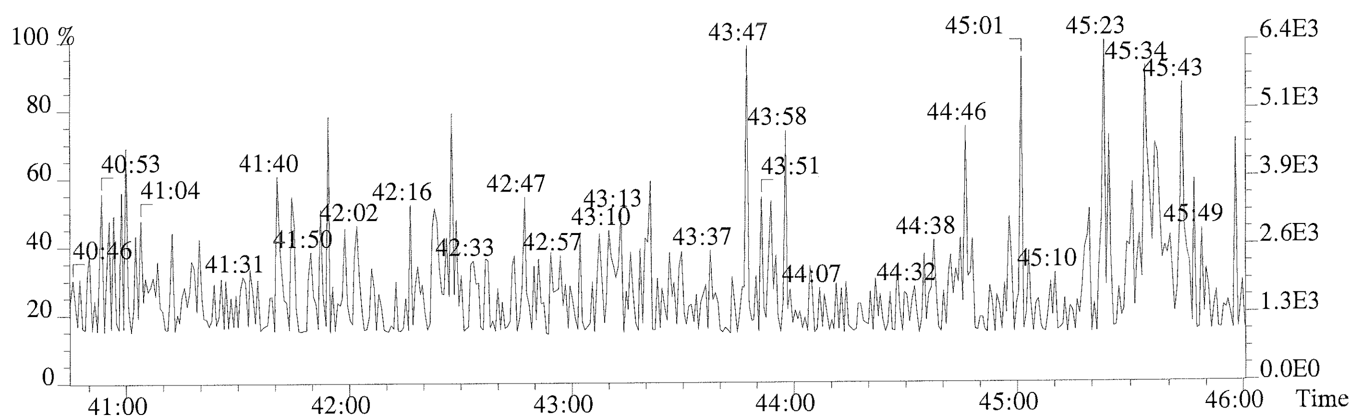
File:P231790 #1-484 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9272.0,0.40%,F,T)



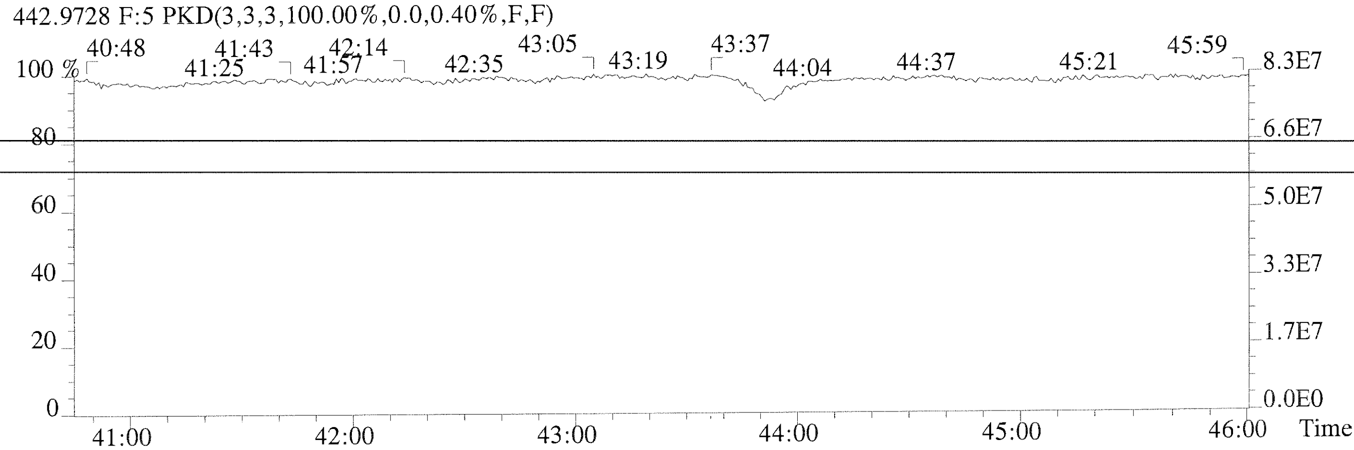
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10928.0,0.40%,F,T)



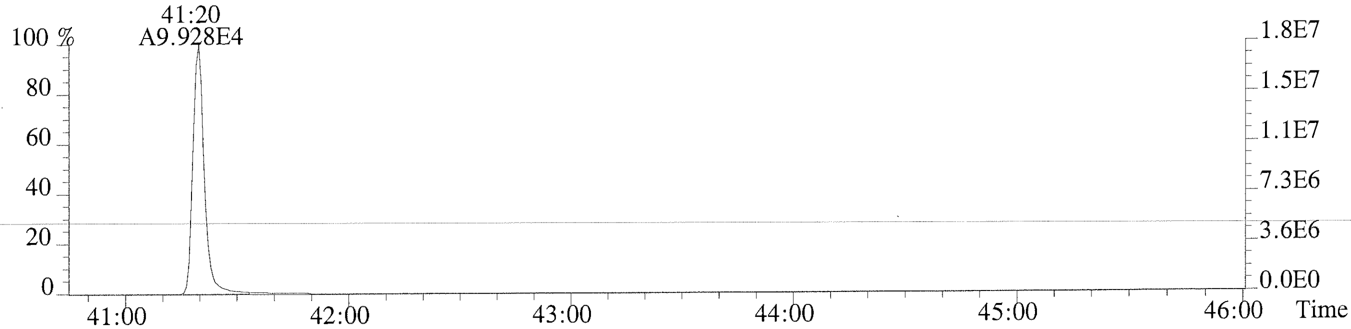
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



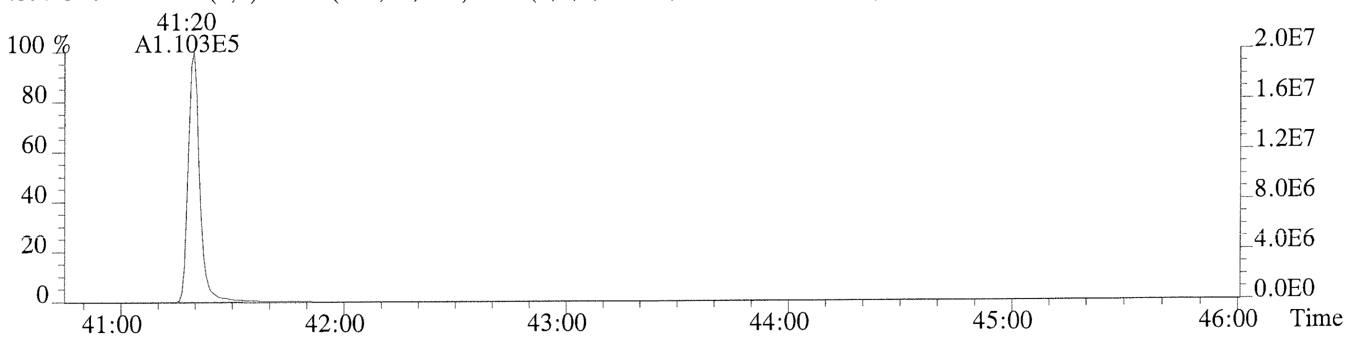
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



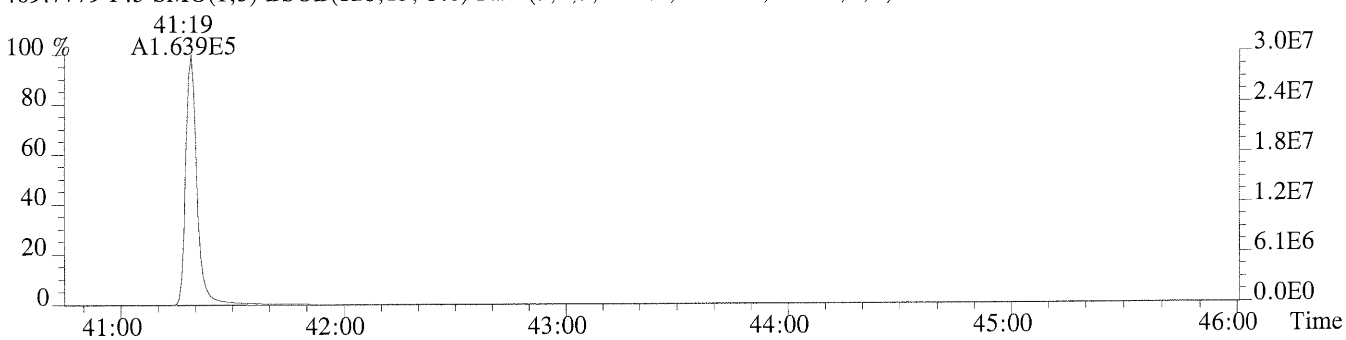
File:P231790 #1-484 Acq: 7-OCT-2014 11:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3108.0,0.40%,F,T)



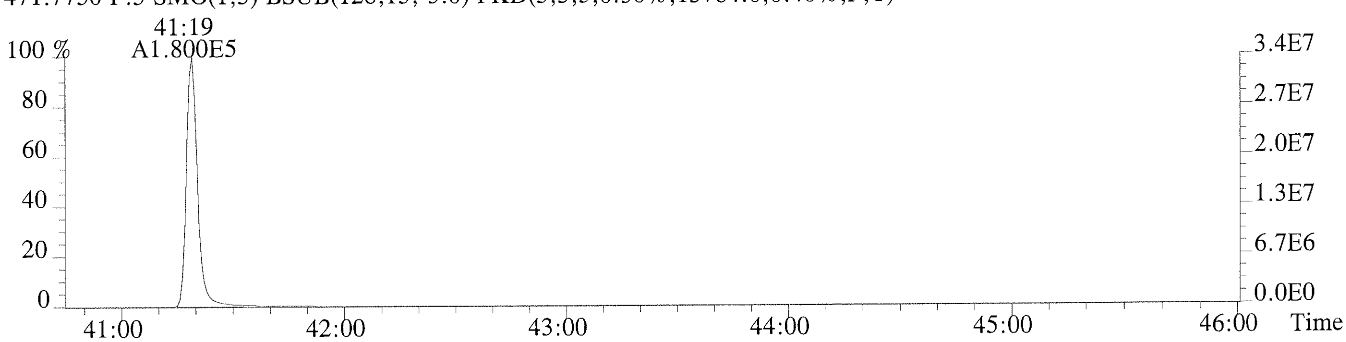
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8036.0,0.40%,F,T)



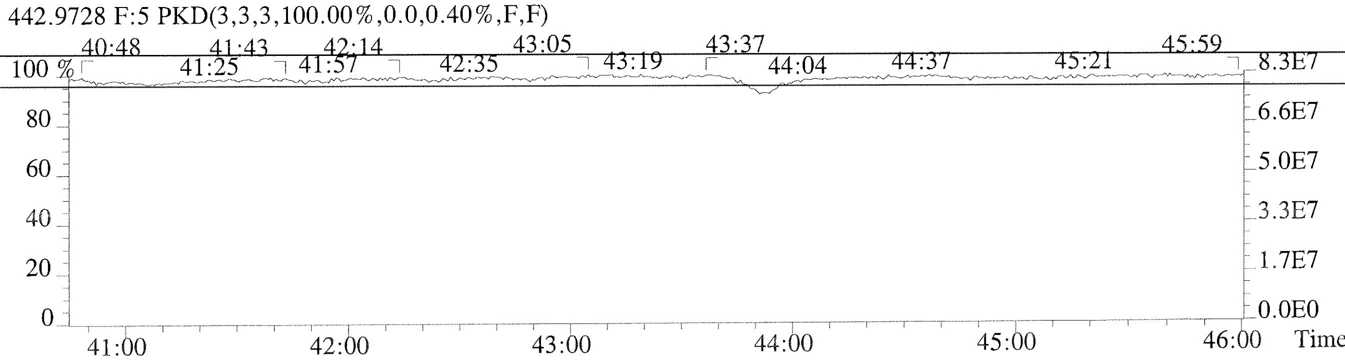
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,12688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,13784.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL　　Episode No.:

Contract No.:　　SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04　　GC Column ID: DB-5MSUI

VER Data Filename: P231800　　Analysis Date: 7-OCT-14　Time: 20:22:05

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.5	7.8 - 12.9	-4.9
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	50	39 - 65	-0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	3.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	52	41 - 61	4.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	50	43 - 58	0.8
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	3.7
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.4	8.4 - 12.0	-5.7
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	1.4
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	50	41 - 61	-0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	51	44 - 57	1.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	50	44 - 57	-0.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	1.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	0.8
OCDF	M+2/M+4	0.90	0.76-1.02	115	63 - 159	14.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04   GC Column ID: DB-5MSUI

VER Data Filename: P231800   Analysis Date: 7-OCT-14   Time: 20:22:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	96	82 - 121	-4.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	83	62 - 160	-16.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	97	85 - 117	-3.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	95	85 - 118	-4.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	111	72 - 138	10.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	248	96 - 415	23.9
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	97	71 - 140	-3.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	84	76 - 130	-15.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	84	77 - 130	-15.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	70 - 143	-2.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	111	74 - 135	11.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	98	73 - 137	-2.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	108	78 - 129	7.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	130	77 - 129	30.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.4	7.8 - 12.7	-6.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
72675

Run #17 Filename P231800 Samp: 1 Inj: 1 Acquired: 7-OCT-14 20:22:05
Processed: 8-OCT-14 07:08:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:46	5.003e+03	6.782e+03	0.74	yes	no	0.986
2	Unk	1,2,3,7,8-PeCDF	31:21	4.408e+04	2.842e+04	1.55	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:19	4.168e+04	2.676e+04	1.56	yes	no	0.970
4	Unk	1,2,3,4,7,8-HxCDF	35:06	3.678e+04	2.968e+04	1.24	yes	no	1.191
5	Unk	1,2,3,6,7,8-HxCDF	35:13	3.920e+04	3.121e+04	1.26	yes	no	1.131
6	Unk	2,3,4,6,7,8-HxCDF	35:45	3.572e+04	2.862e+04	1.25	yes	no	1.109
7	Unk	1,2,3,7,8,9-HxCDF	36:31	3.209e+04	2.625e+04	1.22	yes	no	1.132
8	Unk	1,2,3,4,6,7,8-HpCDF	37:48	3.233e+04	3.145e+04	1.03	yes	no	1.349
9	Unk	1,2,3,4,7,8,9-HpCDF	39:09	2.589e+04	2.558e+04	1.01	yes	no	1.274
10	Unk	OCDF	41:31	4.444e+04	4.947e+04	0.90	yes	no	1.195
11	Unk	2,3,7,8-TCDD	27:38	3.808e+03	4.919e+03	0.77	yes	no	1.061
12	Unk	1,2,3,7,8-PeCDD	32:37	2.949e+04	1.845e+04	1.60	yes	no	0.992
13	Unk	1,2,3,4,7,8-HxCDD	35:53	2.679e+04	2.147e+04	1.25	yes	no	1.118
14	Unk	1,2,3,6,7,8-HxCDD	35:58	2.675e+04	2.099e+04	1.27	yes	no	1.086
15	Unk	1,2,3,7,8,9-HxCDD	36:13	2.964e+04	2.314e+04	1.28	yes	no	1.186
16	Unk	1,2,3,4,6,7,8-HpCDD	38:42	2.424e+04	2.351e+04	1.03	yes	no	1.053
17	Unk	OCDD	41:20	3.939e+04	4.377e+04	0.90	yes	no	1.169
18	IS	13C-2,3,7,8-TCDF	26:44	5.677e+04	6.998e+04	0.81	yes	no	1.457
19	IS	13C-1,2,3,7,8-PeCDF	31:20	8.832e+04	5.468e+04	1.62	yes	no	1.888
20	IS	13C-2,3,4,7,8-PeCDF	32:18	8.749e+04	5.449e+04	1.61	yes	no	1.875
21	IS	13C-1,2,3,4,7,8-HxCDF	35:06	3.706e+04	7.232e+04	0.51	yes	no	1.176
22	IS	13C-1,2,3,6,7,8-HxCDF	35:13	4.190e+04	8.051e+04	0.52	yes	no	1.307
23	IS	13C-2,3,4,6,7,8-HxCDF	35:45	3.945e+04	7.674e+04	0.51	yes	no	1.244
24	IS	13C-1,2,3,7,8,9-HxCDF	36:30	3.483e+04	6.804e+04	0.51	yes	no	0.965
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:47	2.899e+04	6.466e+04	0.45	yes	no	0.909
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:09	2.467e+04	5.553e+04	0.44	yes	no	0.645
27	IS	13C-2,3,7,8-TCDD	27:36	3.792e+04	4.857e+04	0.78	yes	no	1.006
28	IS	13C-1,2,3,7,8-PeCDD	32:36	5.962e+04	3.744e+04	1.59	yes	no	1.296
29	IS	13C-1,2,3,4,7,8-HxCDD	35:53	4.778e+04	3.780e+04	1.26	yes	no	0.924
30	IS	13C-1,2,3,6,7,8-HxCDD	35:58	4.739e+04	3.755e+04	1.26	yes	no	0.934
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:41	4.682e+04	4.311e+04	1.09	yes	no	0.850
32	IS	13C-OCDD	41:19	6.506e+04	7.214e+04	0.90	yes	no	0.579
33	RS/RT	13C-1,2,3,4-TCDD	26:58	3.975e+04	5.008e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:12	5.275e+04	4.289e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:38	9.252e+03				no	1.099

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
72675

Run #17 Filename P231800 Samp: 1 Inj: 1 Acquired: 7-OCT-14 20:22:05
Processed: 8-OCT-14 07:08:091 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.58e+05	6.96e+02	1.1e+03	1.00e+06	2.71e+03	3.7e+02
2	1,2,3,7,8-PeCDF	8.18e+06	3.96e+02	2.1e+04	5.26e+06	2.48e+03	2.1e+03
3	2,3,4,7,8-PeCDF	8.01e+06	3.96e+02	2.0e+04	5.19e+06	2.48e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	7.88e+06	8.68e+02	9.1e+03	6.44e+06	5.64e+02	1.1e+04
5	1,2,3,6,7,8-HxCDF	8.26e+06	8.68e+02	9.5e+03	6.53e+06	5.64e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	7.69e+06	8.68e+02	8.9e+03	6.17e+06	5.64e+02	1.1e+04
7	1,2,3,7,8,9-HxCDF	6.78e+06	8.68e+02	7.8e+03	5.56e+06	5.64e+02	9.9e+03
8	1,2,3,4,6,7,8-HpCDF	7.20e+06	3.31e+03	2.2e+03	7.02e+06	2.19e+03	3.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.33e+06	3.31e+03	1.6e+03	5.22e+06	2.19e+03	2.4e+03
10	OCDF	7.95e+06	4.00e+03	2.0e+03	8.77e+06	4.34e+03	2.0e+03
11	2,3,7,8-TCDD	6.25e+05	1.28e+03	4.9e+02	8.15e+05	1.04e+03	7.9e+02
12	1,2,3,7,8-PeCDD	5.92e+06	1.43e+03	4.1e+03	3.63e+06	5.52e+02	6.6e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.44e+02	8.1e+03	4.76e+06	8.32e+02	5.7e+03
14	1,2,3,6,7,8-HxCDD	5.76e+06	7.44e+02	7.7e+03	4.48e+06	8.32e+02	5.4e+03
15	1,2,3,7,8,9-HxCDD	6.32e+06	7.44e+02	8.5e+03	5.04e+06	8.32e+02	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	5.27e+06	6.64e+02	7.9e+03	5.08e+06	3.16e+02	1.6e+04
17	OCDD	7.32e+06	2.26e+03	3.2e+03	8.09e+06	4.81e+03	1.7e+03
18	13C-2,3,7,8-TCDF	9.09e+06	3.09e+03	2.9e+03	1.12e+07	2.23e+03	5.0e+03
19	13C-1,2,3,7,8-PeCDF	1.60e+07	4.56e+02	3.5e+04	9.94e+06	1.06e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	1.74e+07	4.56e+02	3.8e+04	1.08e+07	1.06e+03	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	8.04e+06	8.00e+02	1.0e+04	1.58e+07	2.83e+03	5.6e+03
22	13C-1,2,3,6,7,8-HxCDF	8.82e+06	8.00e+02	1.1e+04	1.70e+07	2.83e+03	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	8.46e+06	8.00e+02	1.1e+04	1.63e+07	2.83e+03	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	7.18e+06	8.00e+02	9.0e+03	1.43e+07	2.83e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.54e+06	1.84e+03	3.5e+03	1.44e+07	6.17e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.21e+06	1.84e+03	2.8e+03	1.15e+07	6.17e+03	1.9e+03
27	13C-2,3,7,8-TCDD	6.51e+06	7.40e+03	8.8e+02	8.33e+06	4.40e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	1.18e+07	9.56e+02	1.2e+04	7.45e+06	8.40e+02	8.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.07e+07	1.84e+03	5.9e+03	8.45e+06	1.29e+03	6.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.03e+07	1.84e+03	5.6e+03	8.09e+06	1.29e+03	6.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.03e+07	8.68e+02	1.2e+04	9.58e+06	5.48e+02	1.7e+04
32	13C-OCDD	1.24e+07	5.66e+03	2.2e+03	1.37e+07	3.27e+03	4.2e+03
33	13C-1,2,3,4-TCDD	6.57e+06	7.40e+03	8.9e+02	8.22e+06	4.40e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.16e+07	1.84e+03	6.3e+03	9.20e+06	1.29e+03	7.1e+03
35	37Cl-2,3,7,8-TCDD	1.54e+06	2.08e+03	7.4e+02			

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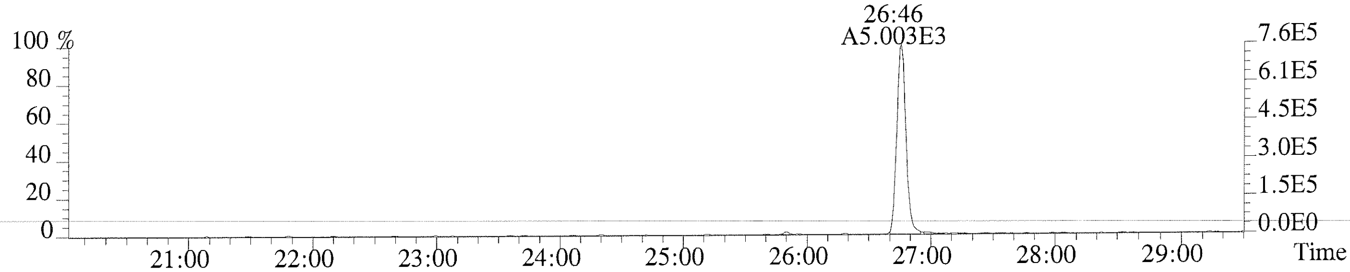
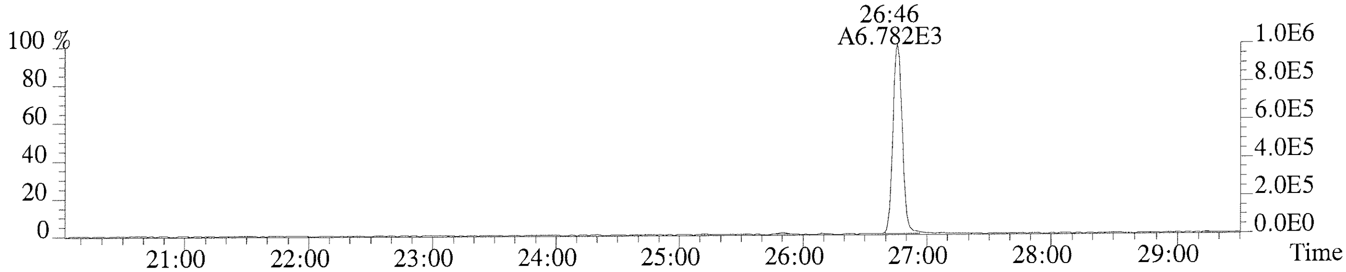
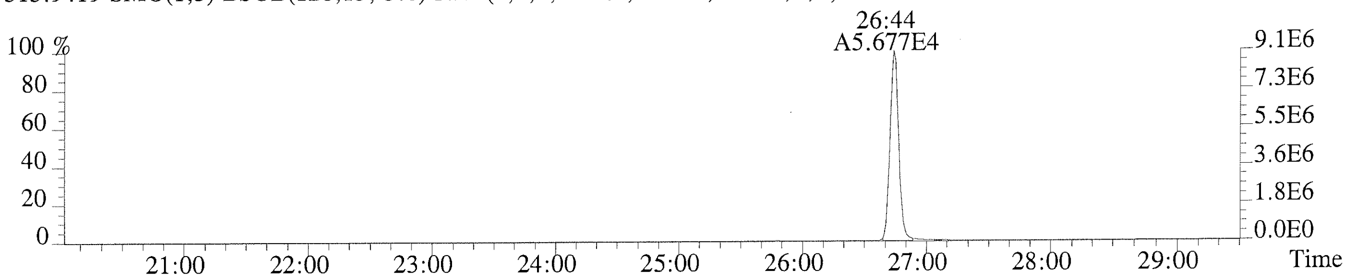
File:P231800 #1-730 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



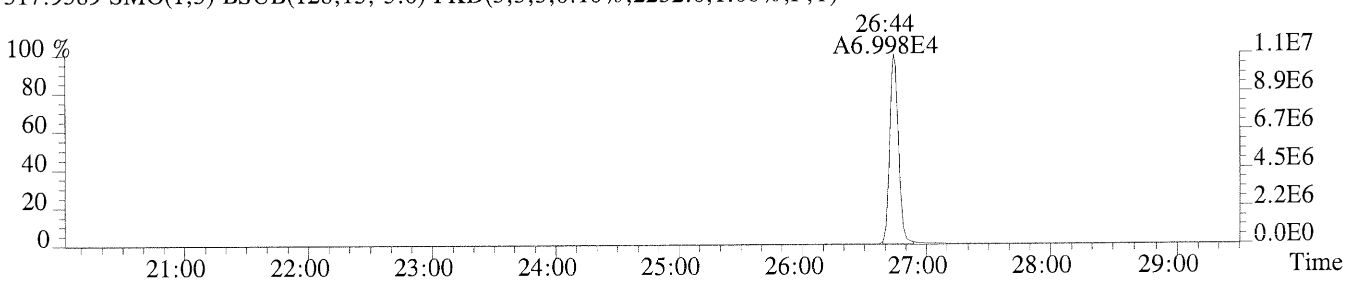
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



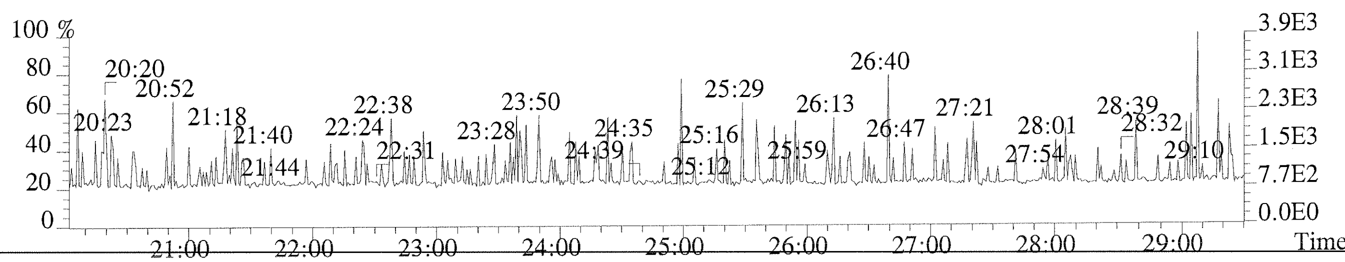
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3092.0,1.00%,F,T)



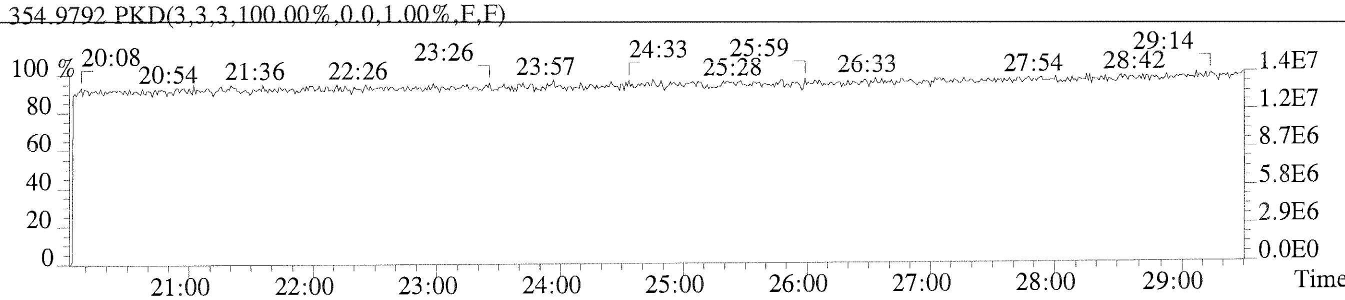
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)



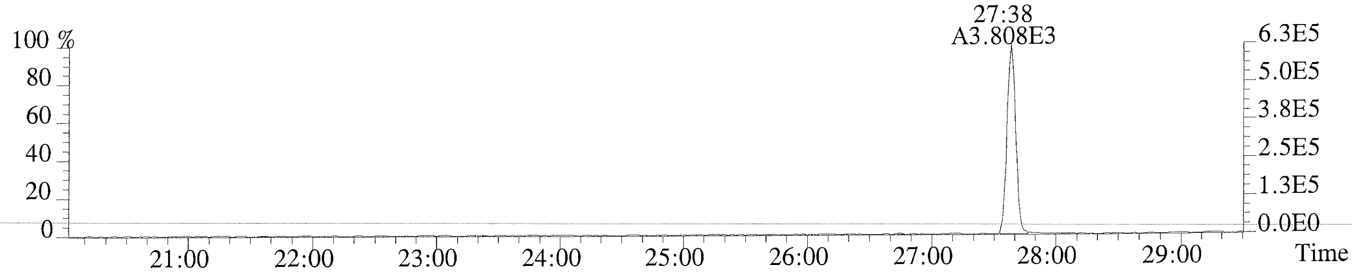
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



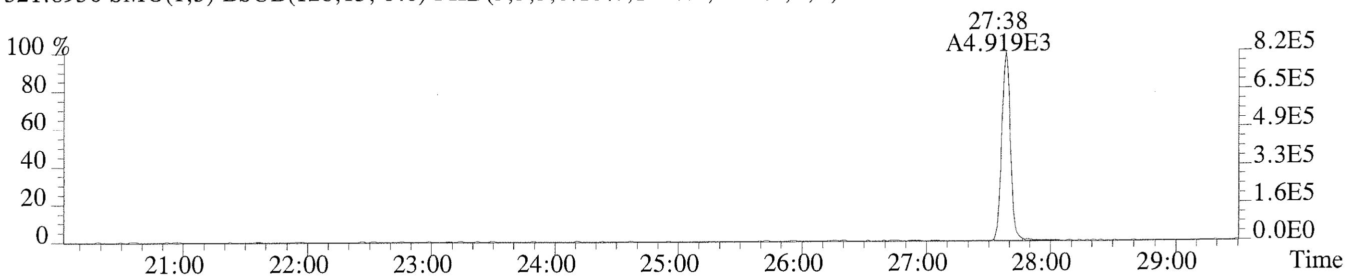
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



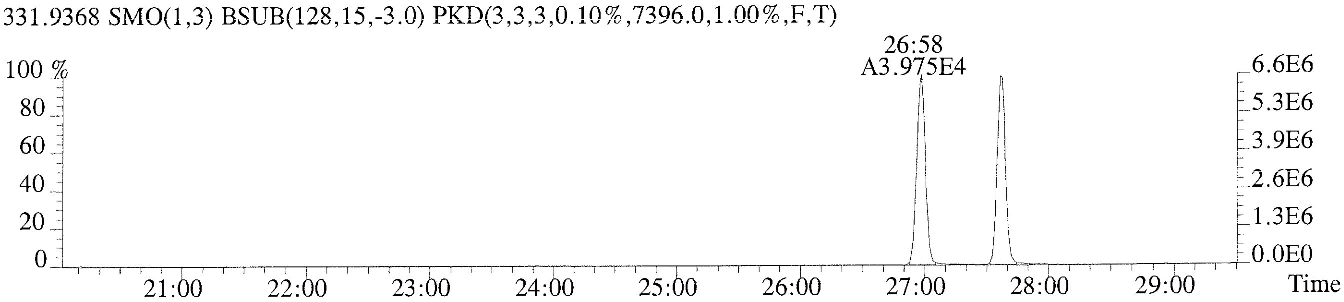
File:P231800 #1-730 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



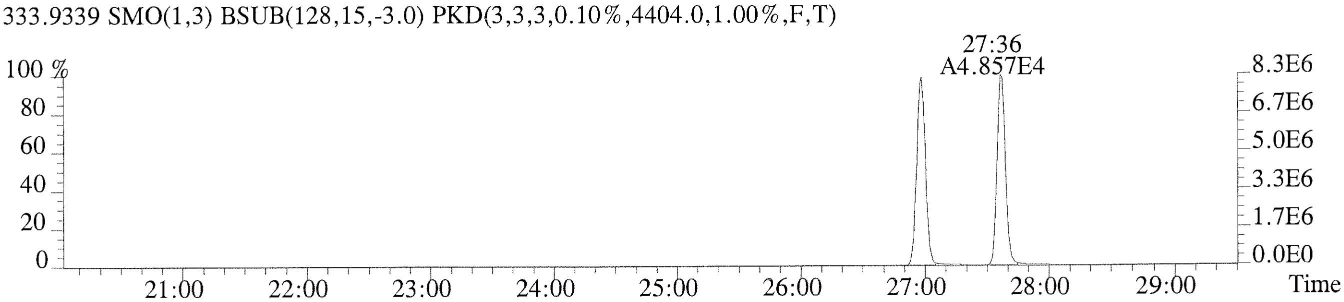
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



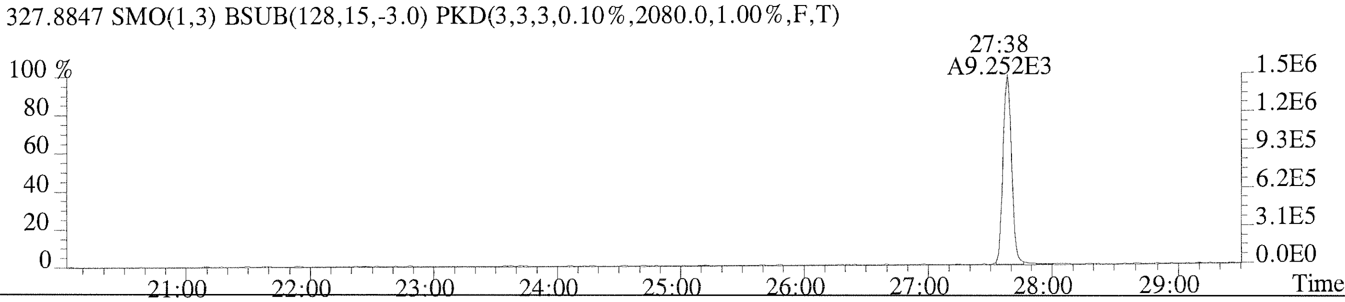
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7396.0,1.00%,F,T)



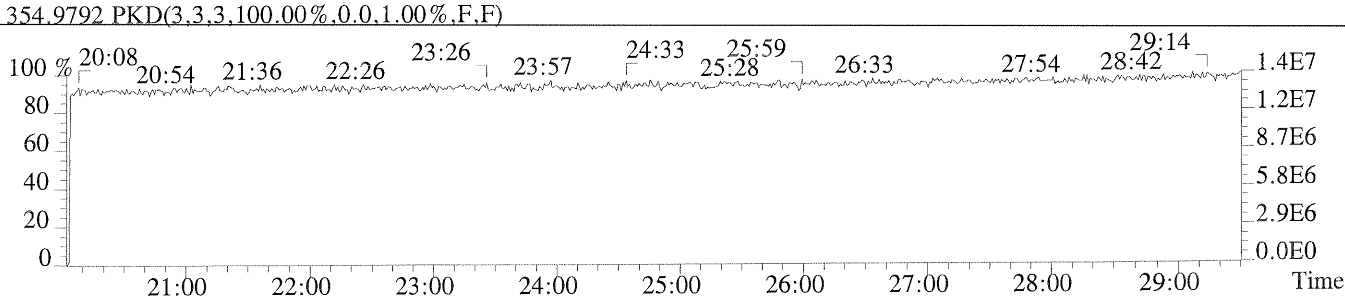
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4404.0,1.00%,F,T)



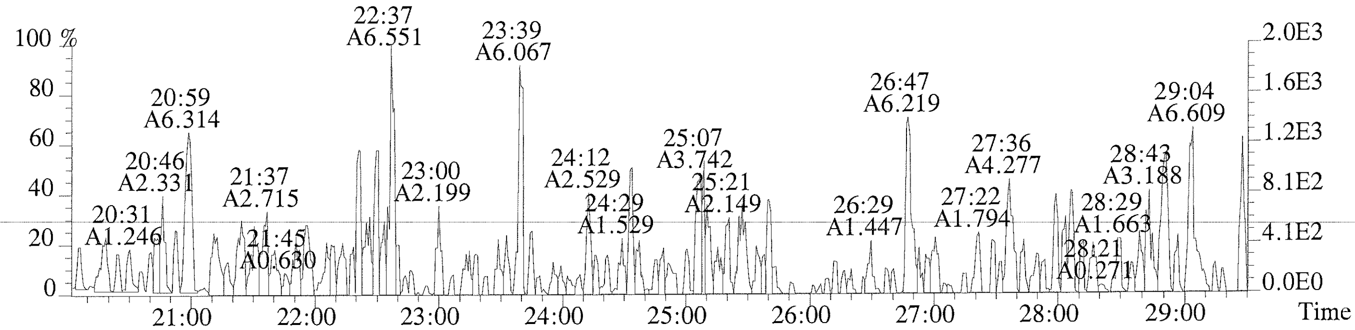
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



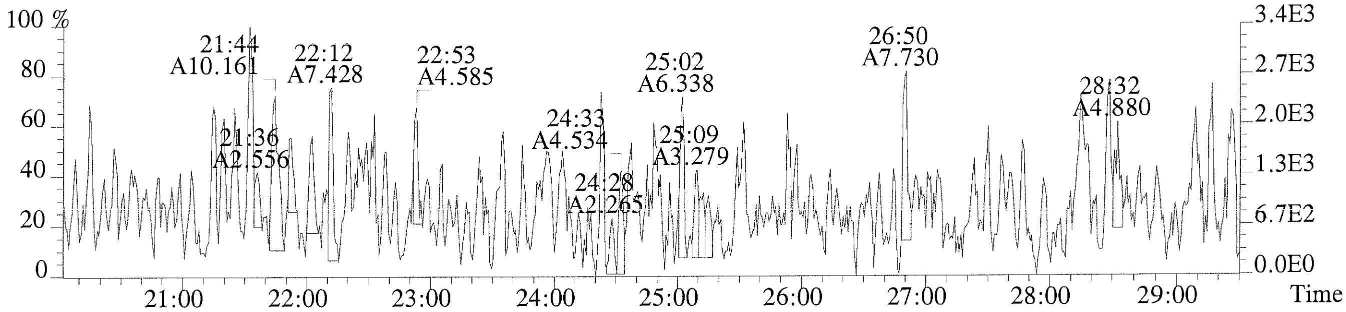
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



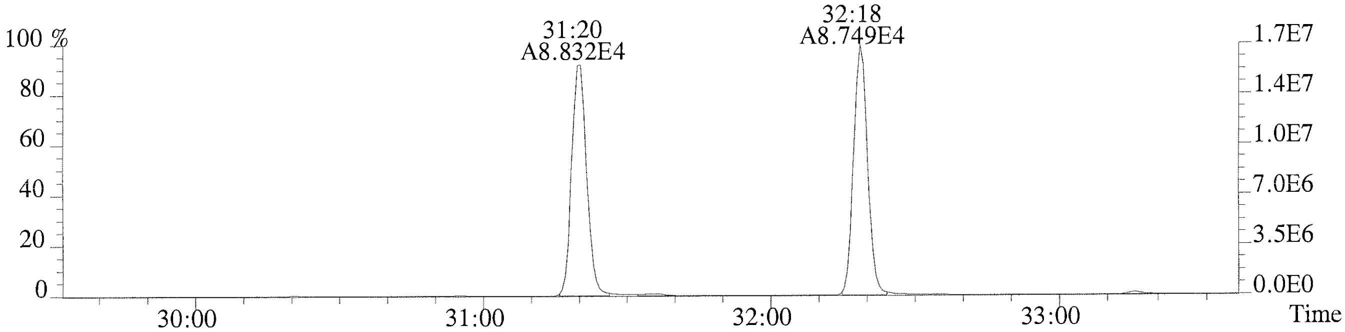
File:P231800 #1-730 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



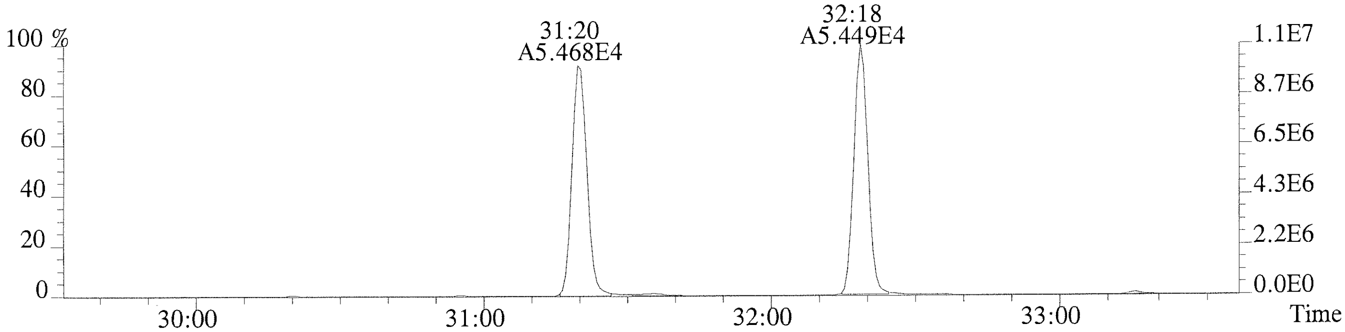
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



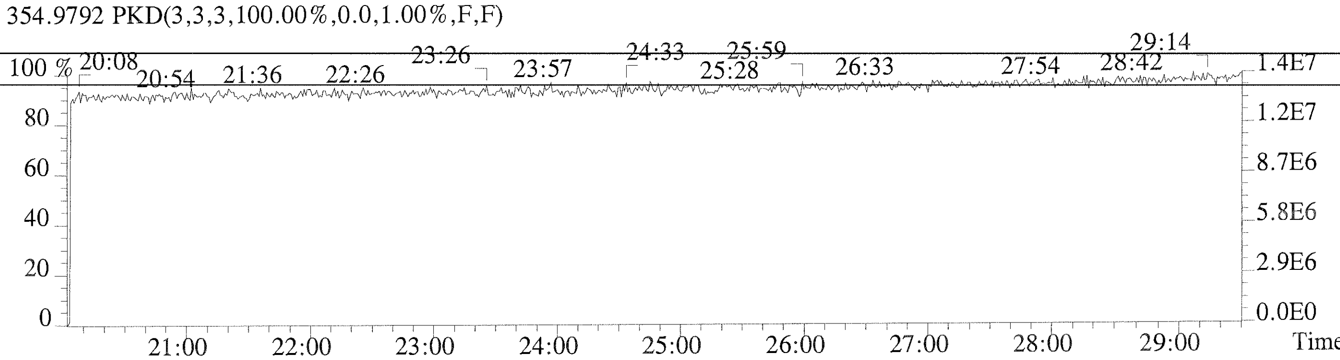
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)

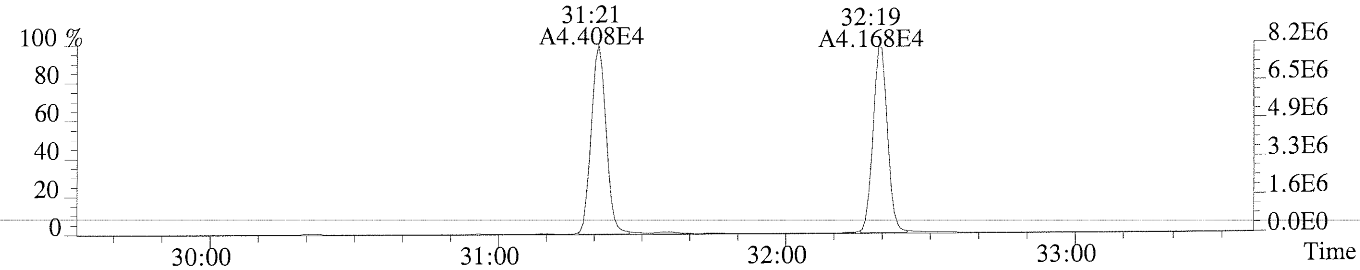


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

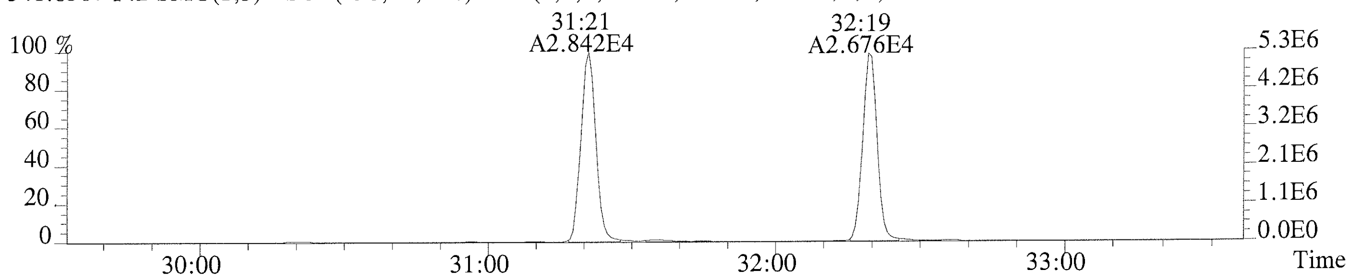


File:P231800 #1-370 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

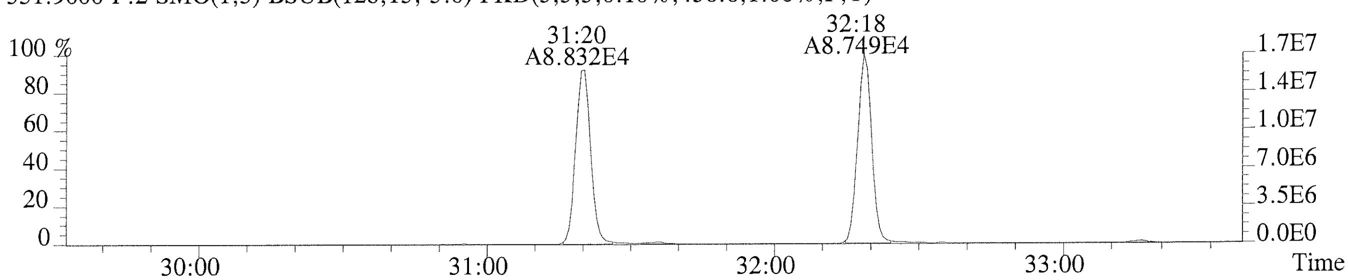
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



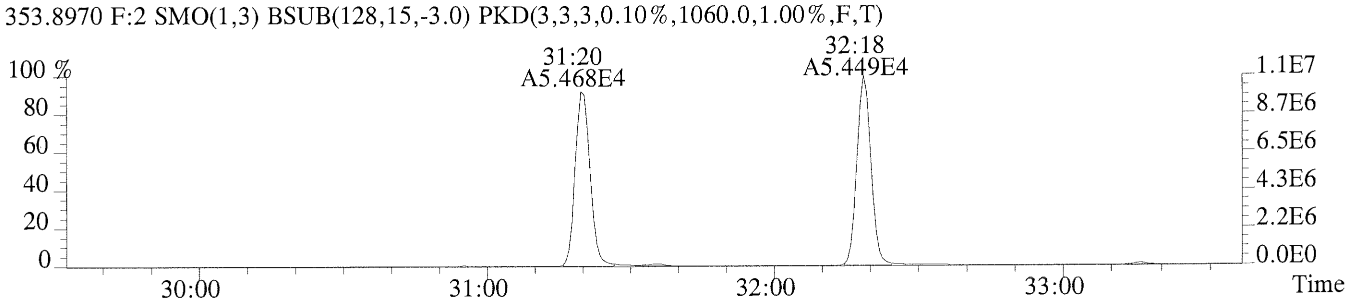
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



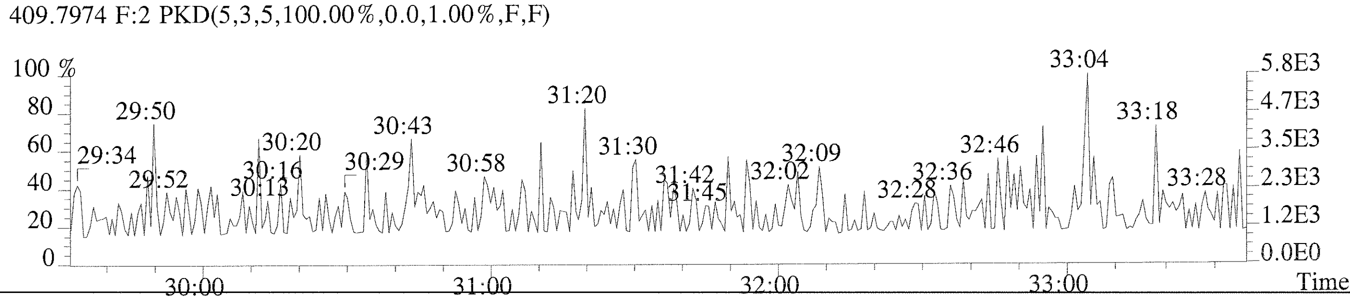
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



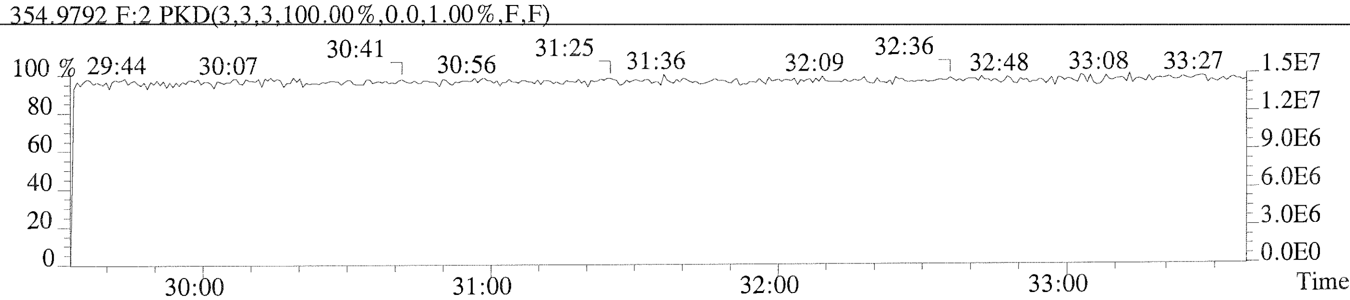
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

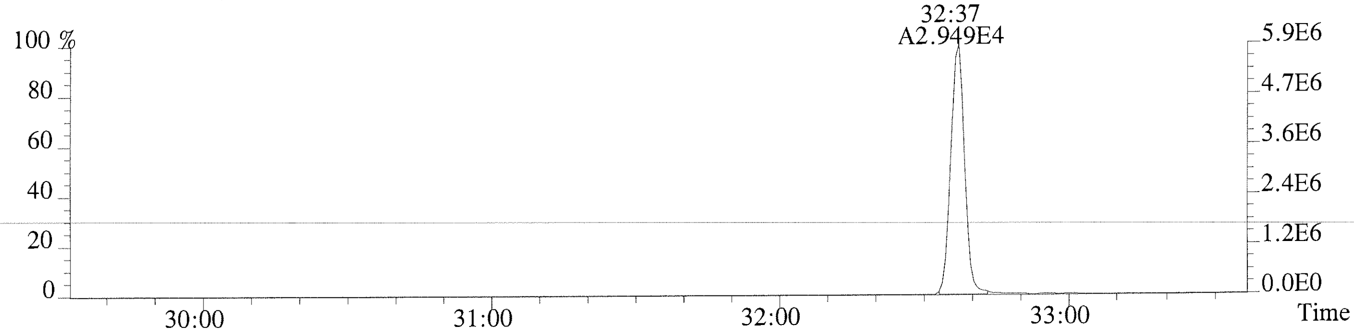


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

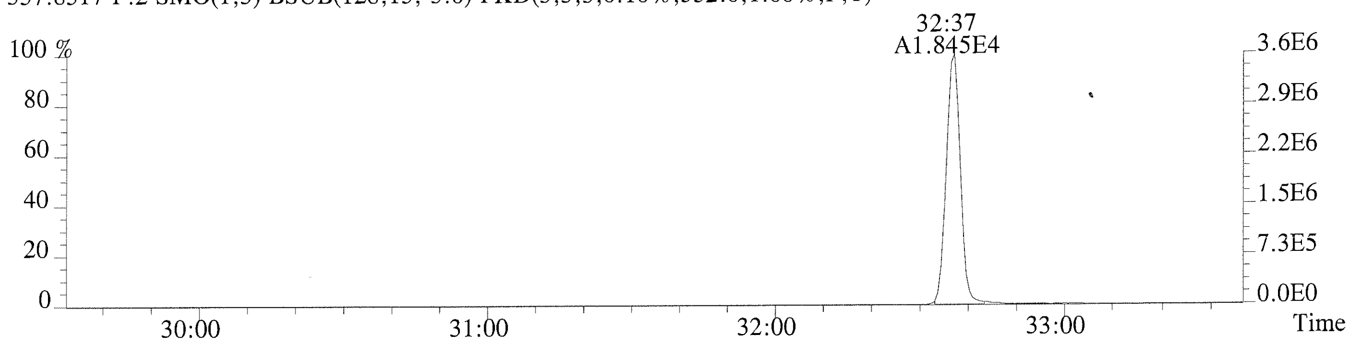


File:P231800 #1-370 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

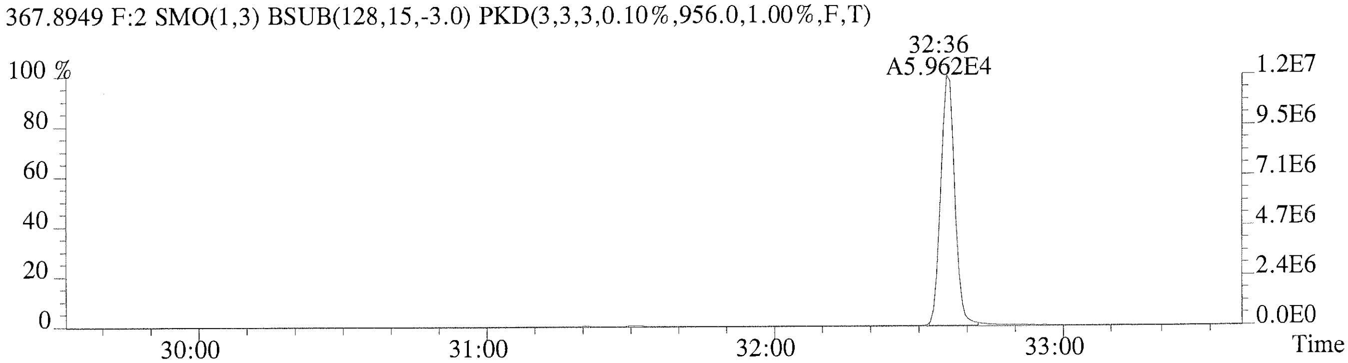
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



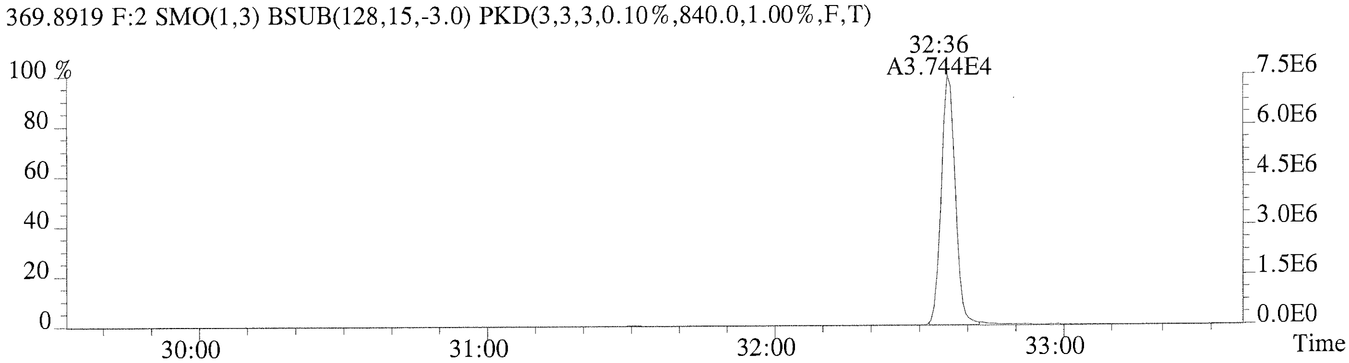
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



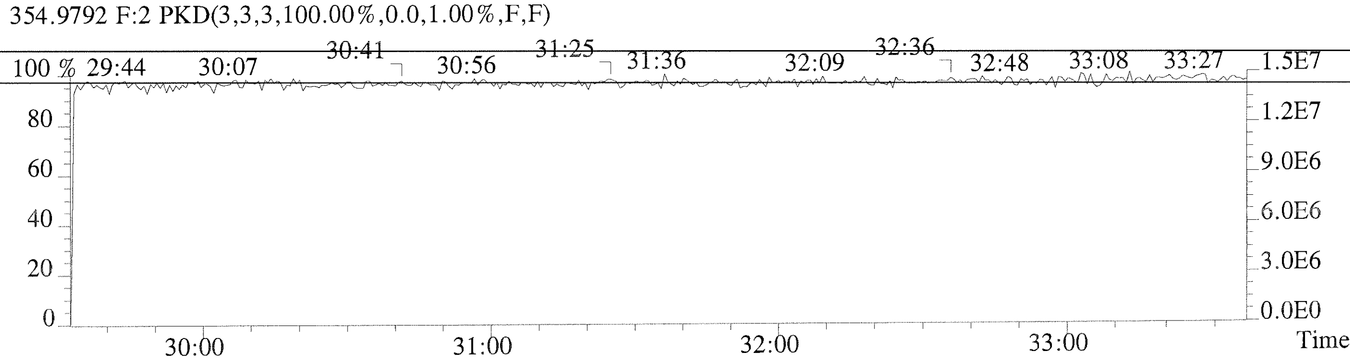
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



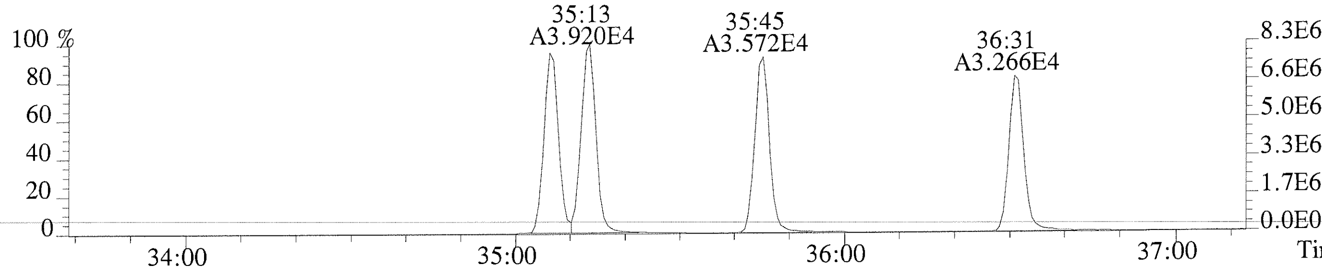
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



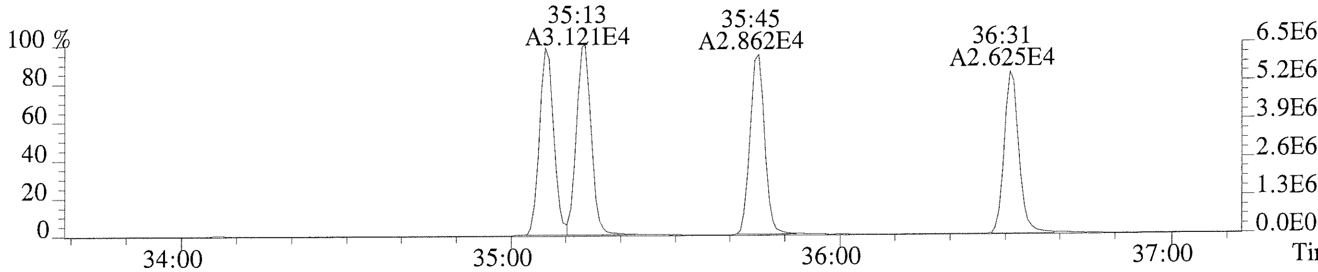
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



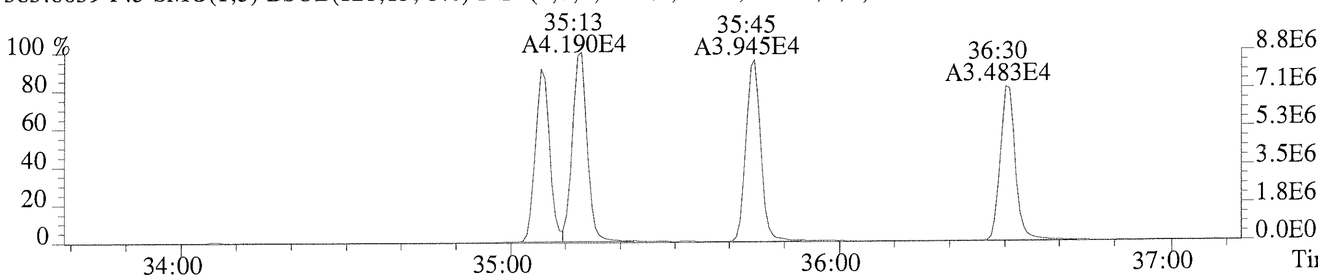
File:P231800 #1-324 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



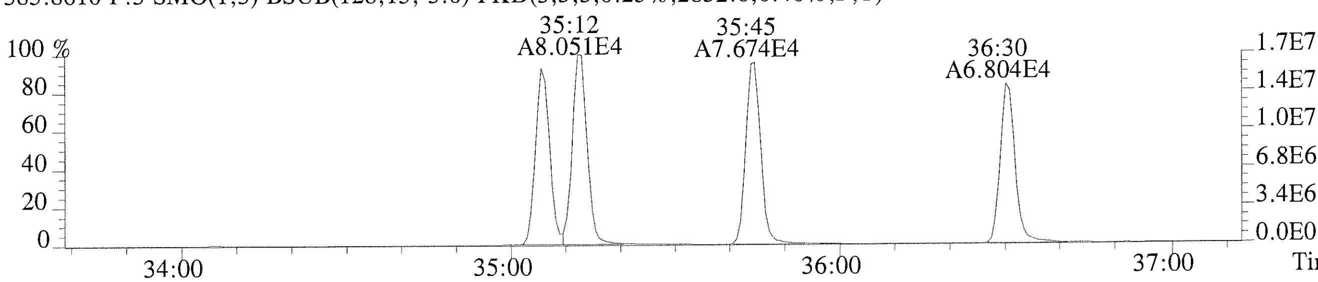
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



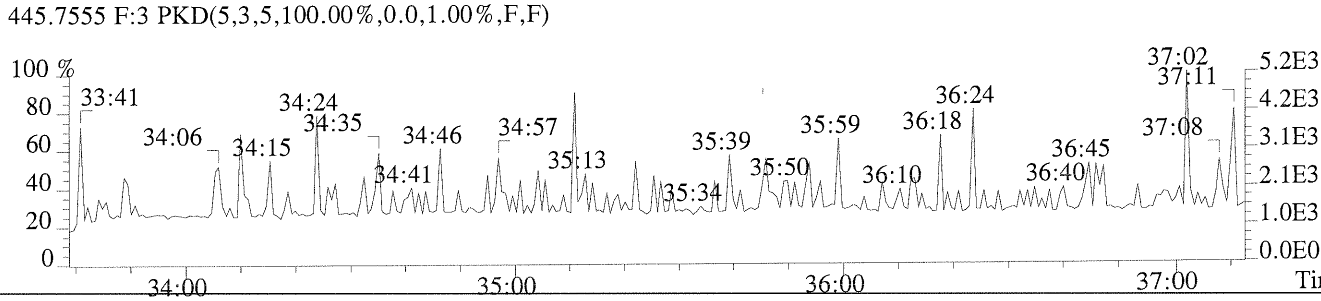
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



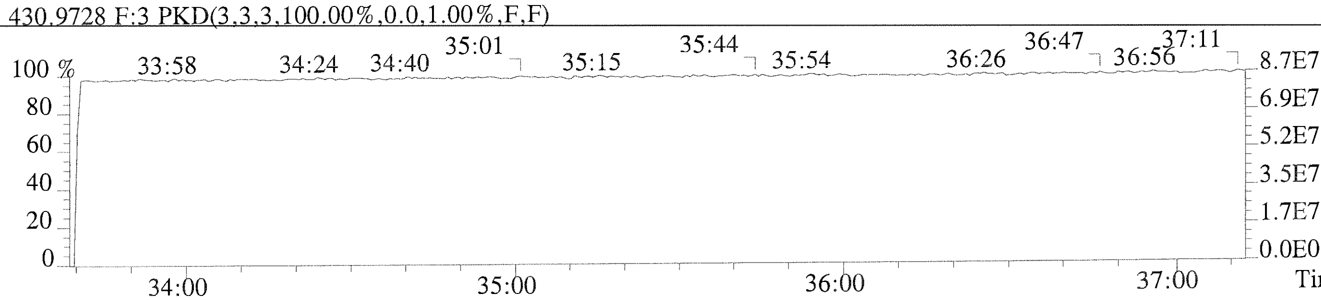
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2832.0,0.40%,F,T)



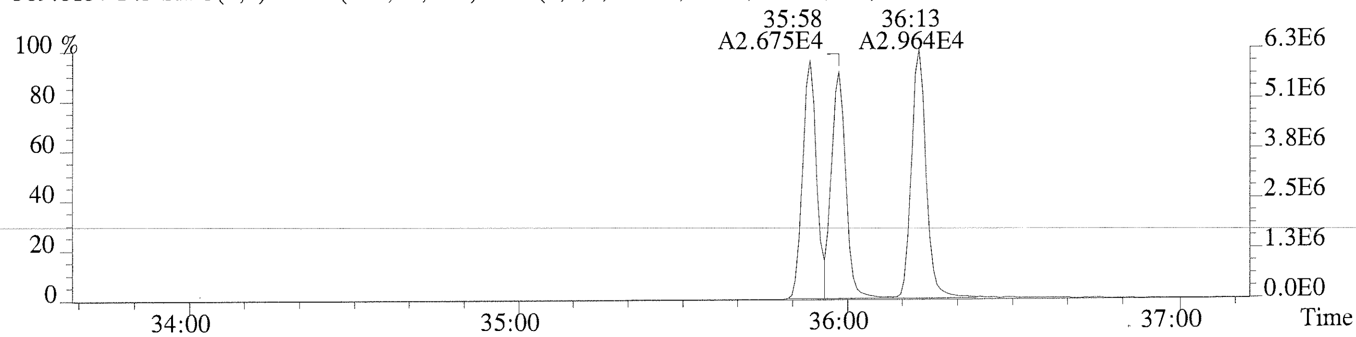
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



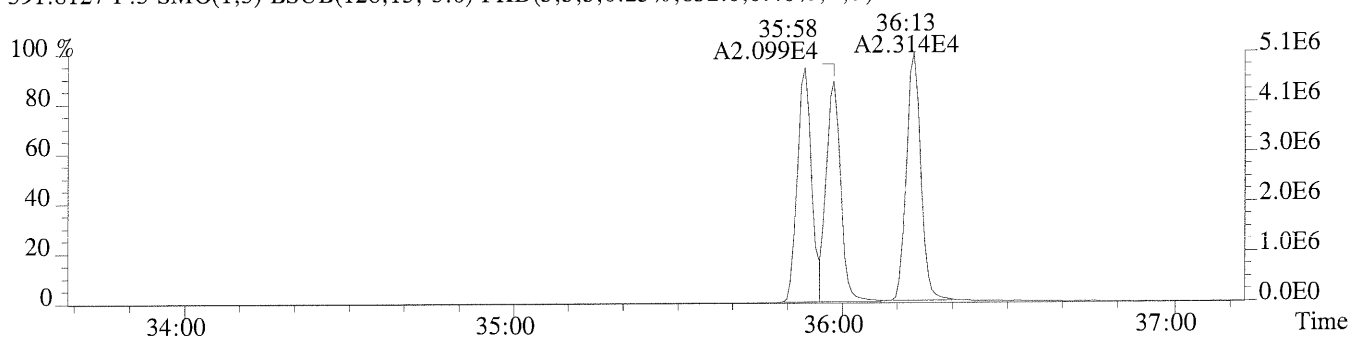
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



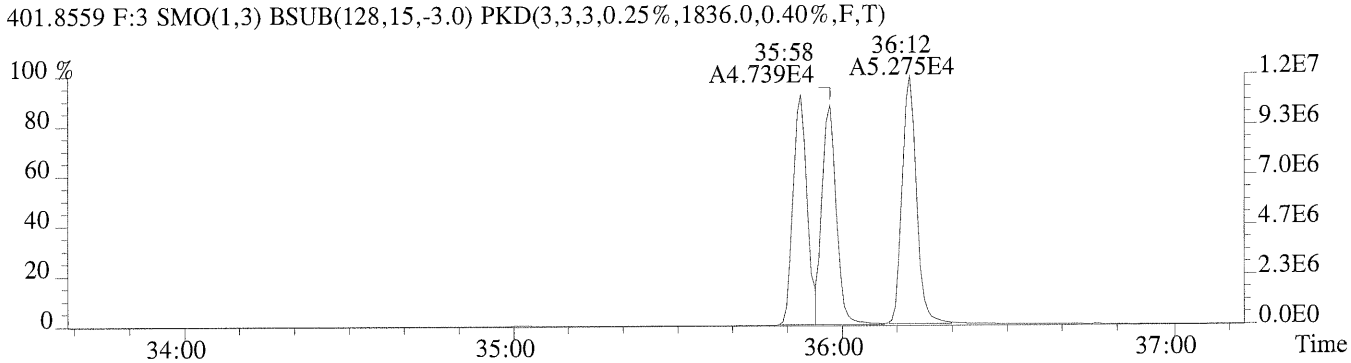
File:P231800 #1-324 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



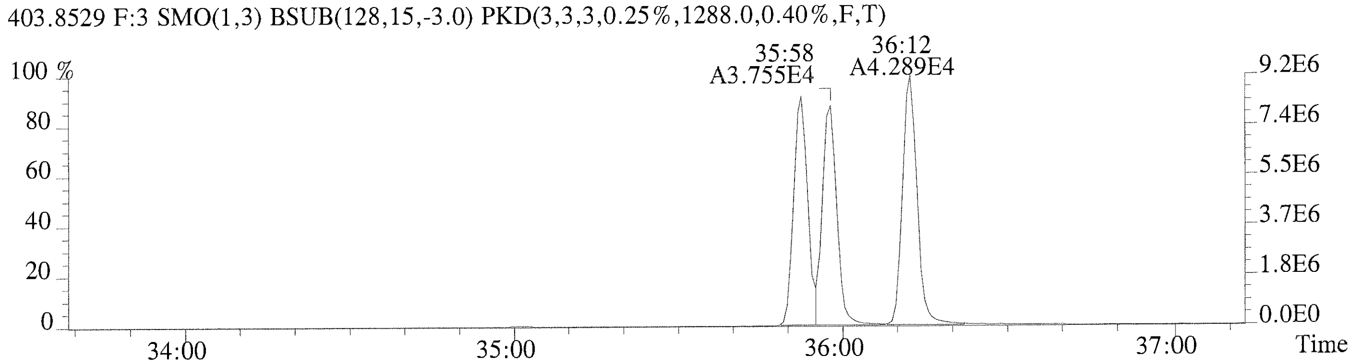
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



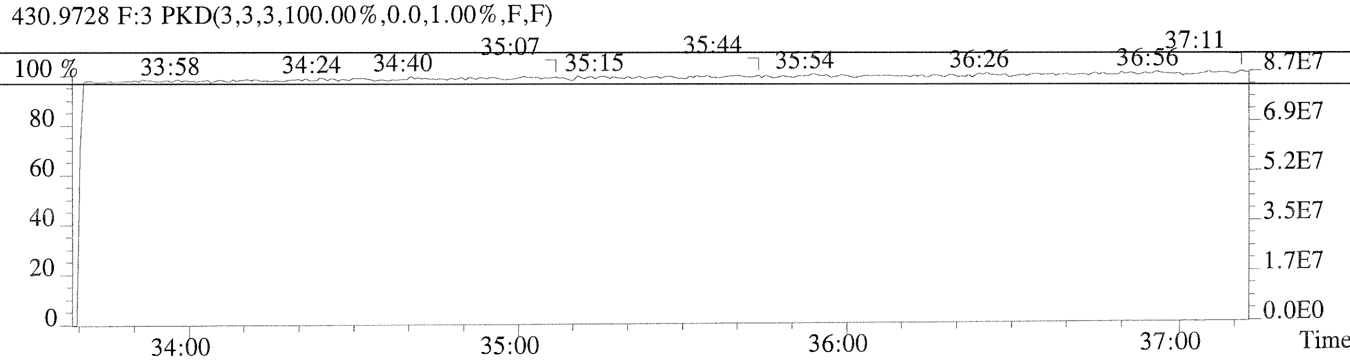
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)

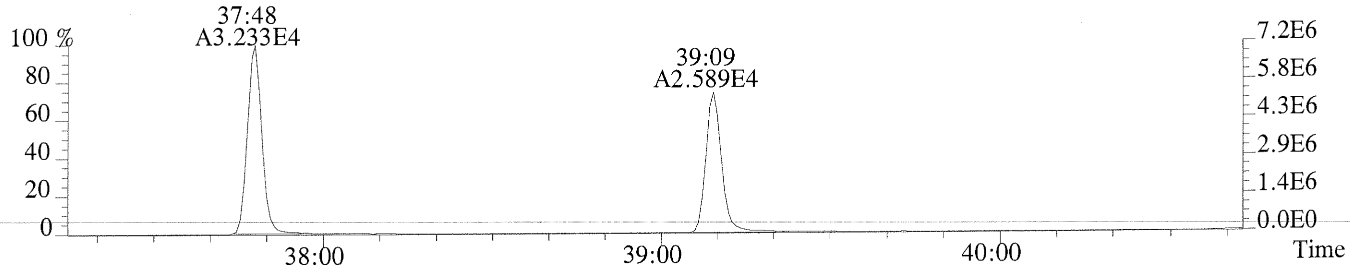


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

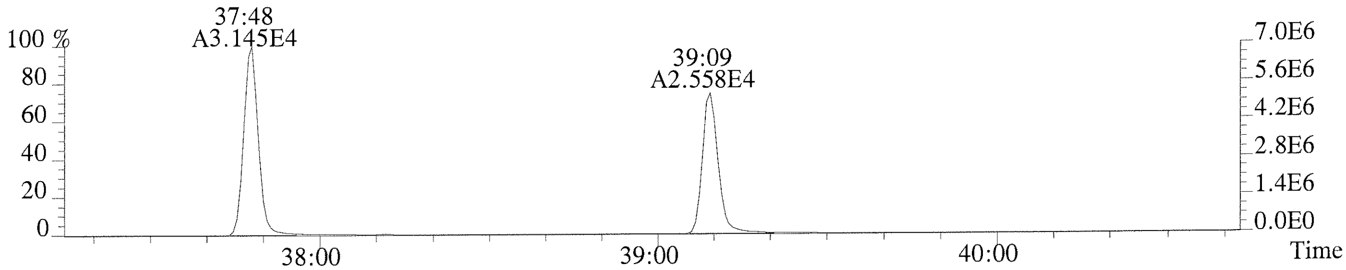


File:P231800 #1-315 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

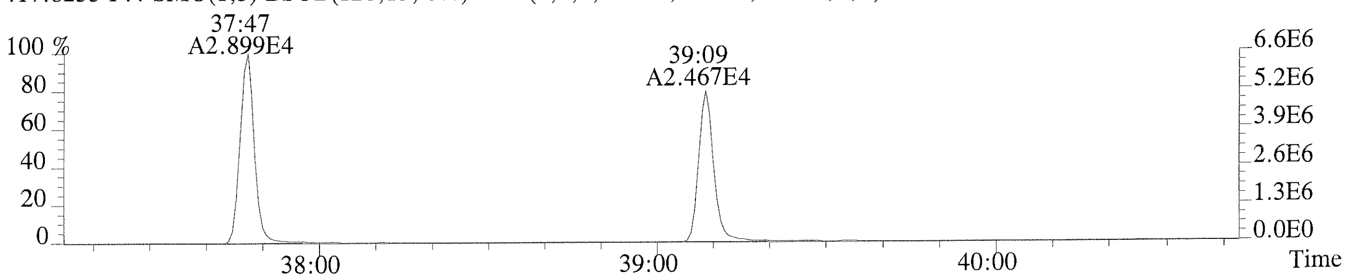
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)



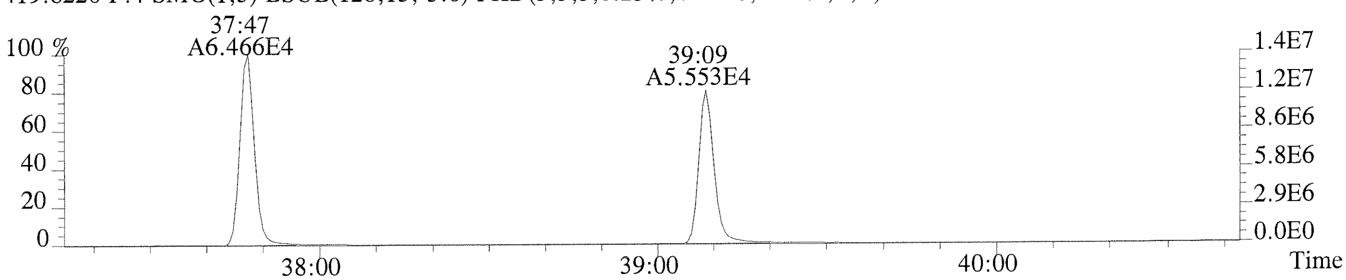
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.50%,F,T)



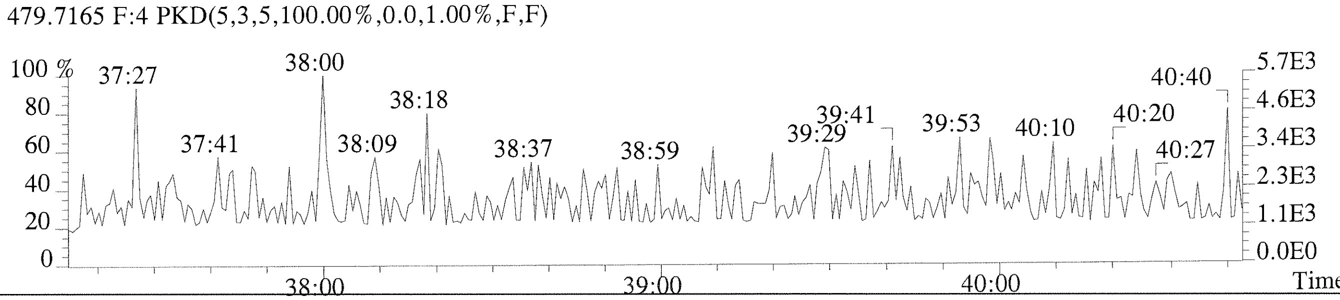
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



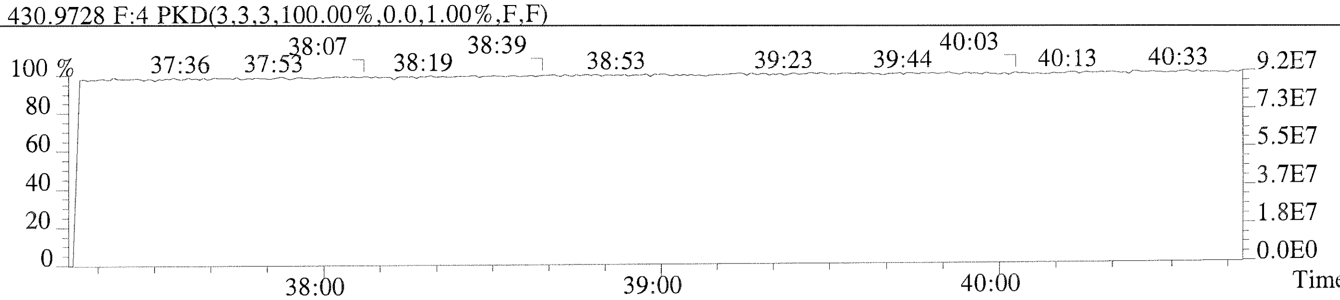
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6172.0,0.50%,F,T)



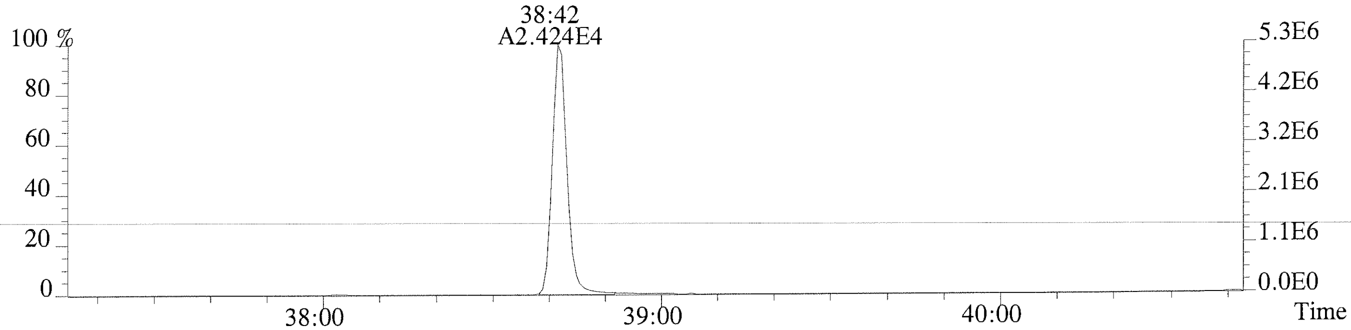
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



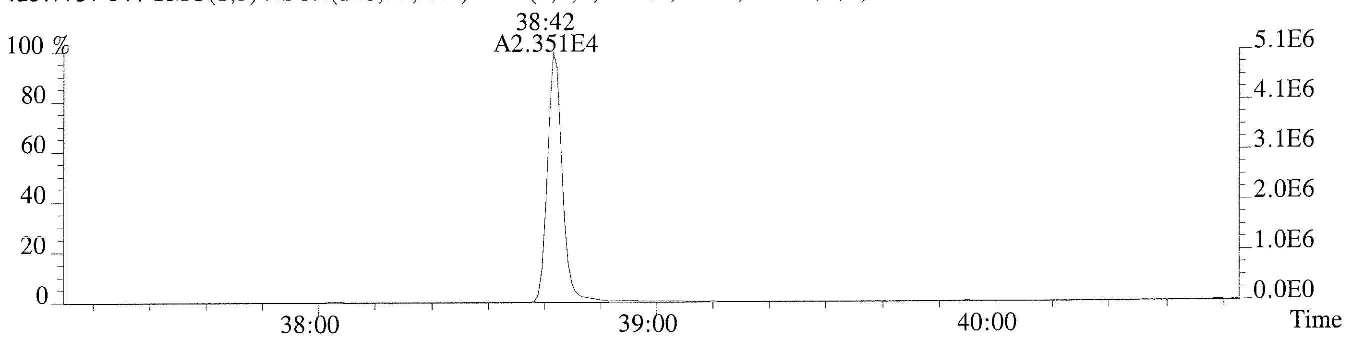
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



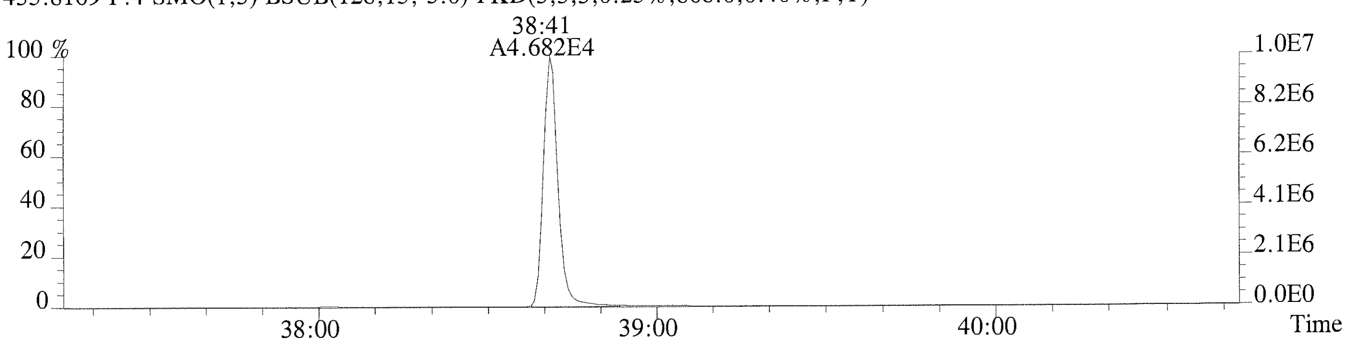
File:P231800 #1-315 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



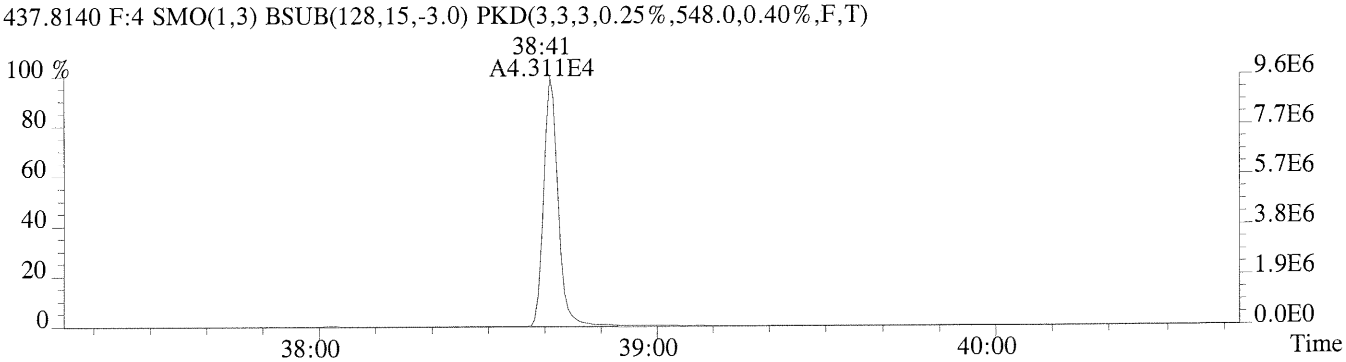
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



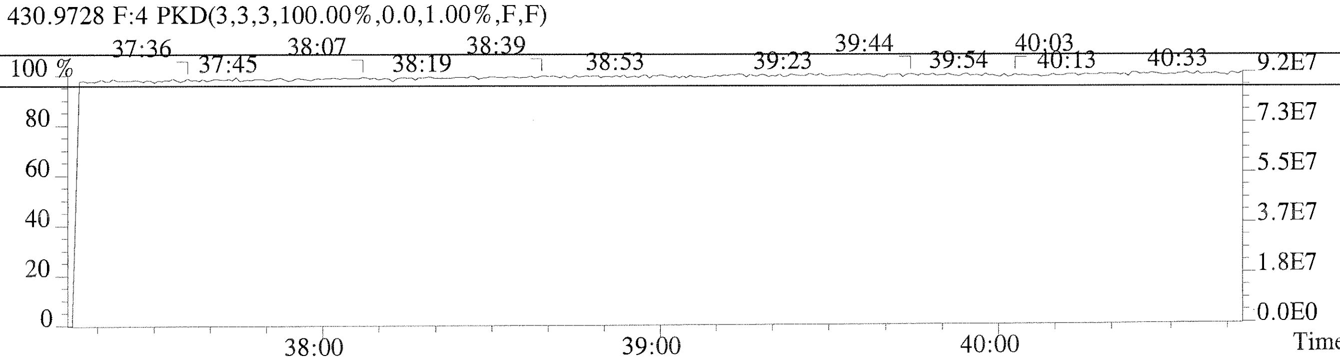
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)

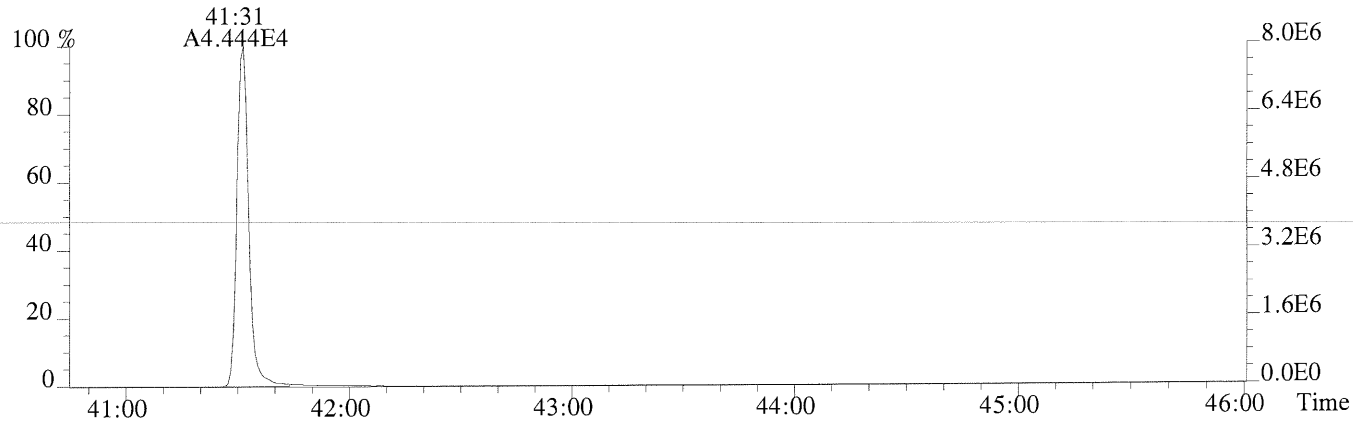


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

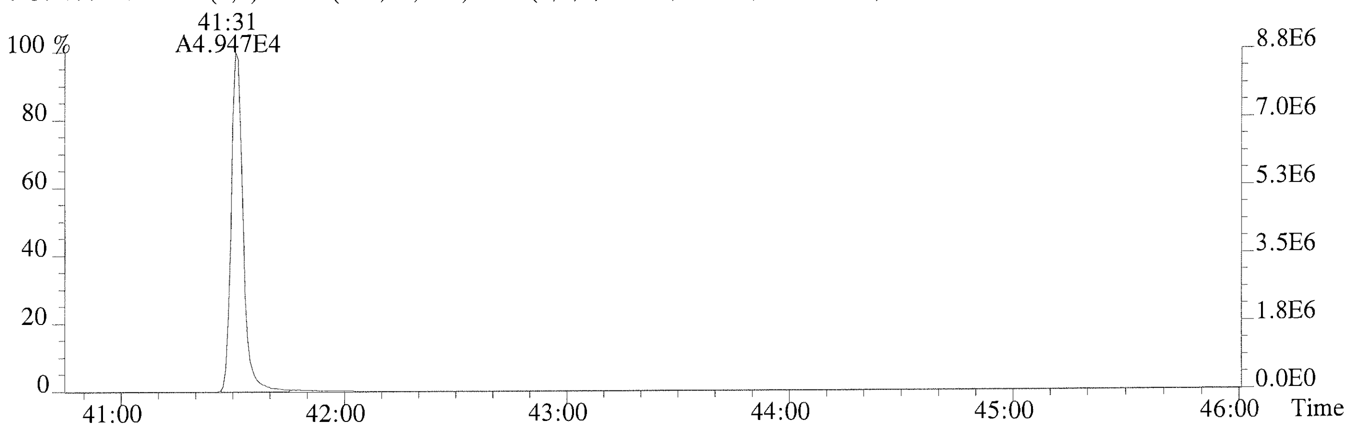


File:P231800 #1-484 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

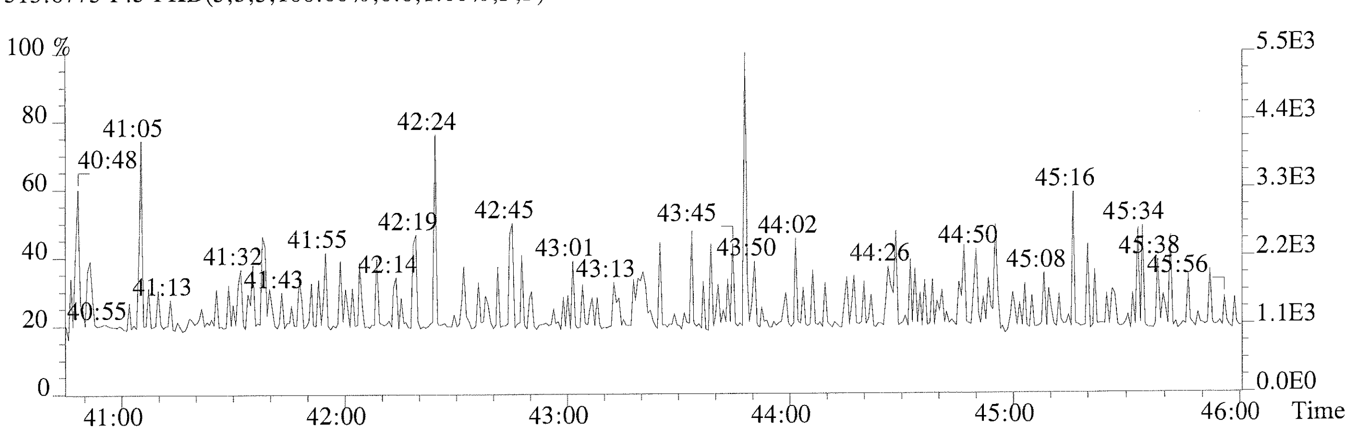
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4000.0,0.40%,F,T)



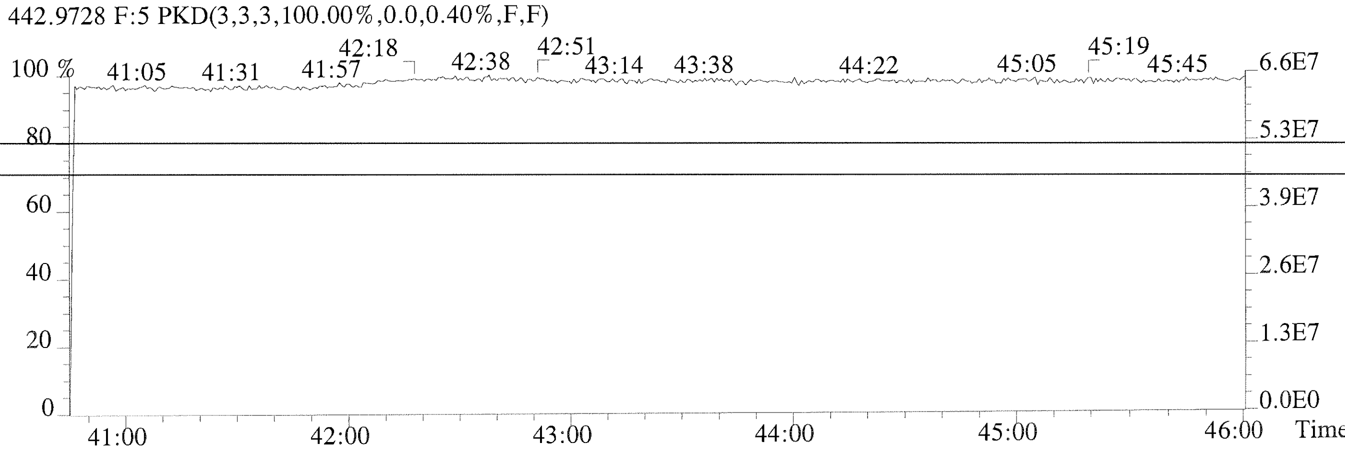
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

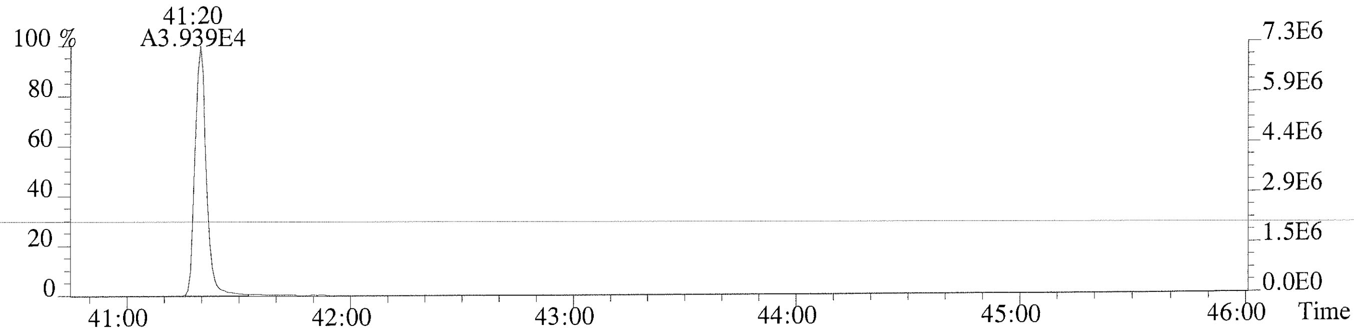


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

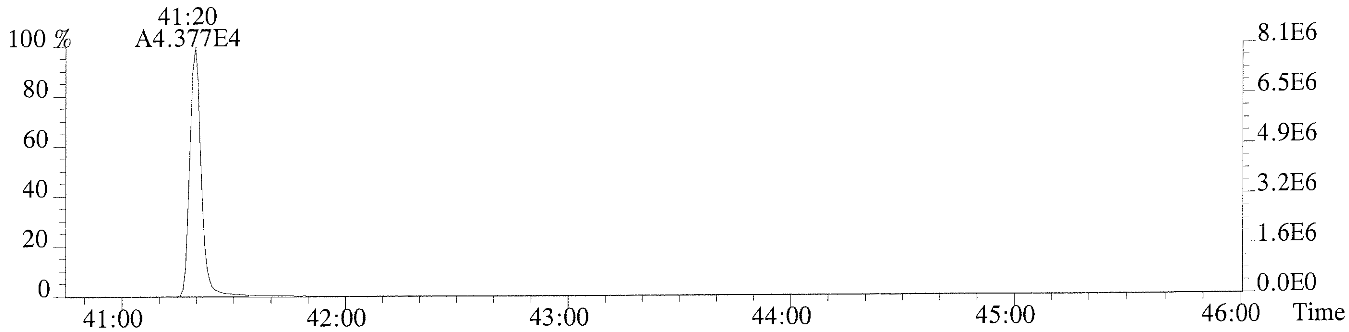


File:P231800 #1-484 Acq: 7-OCT-2014 20:22:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

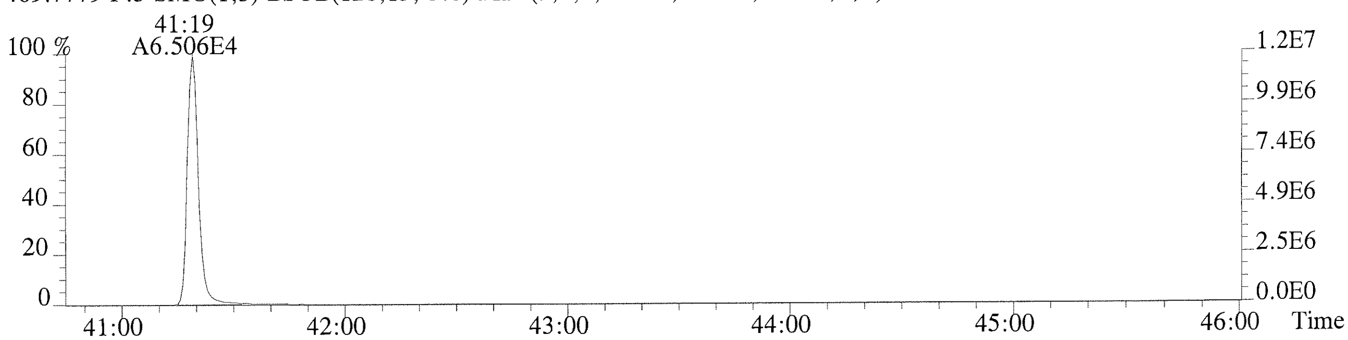
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2256.0,0.40%,F,T)



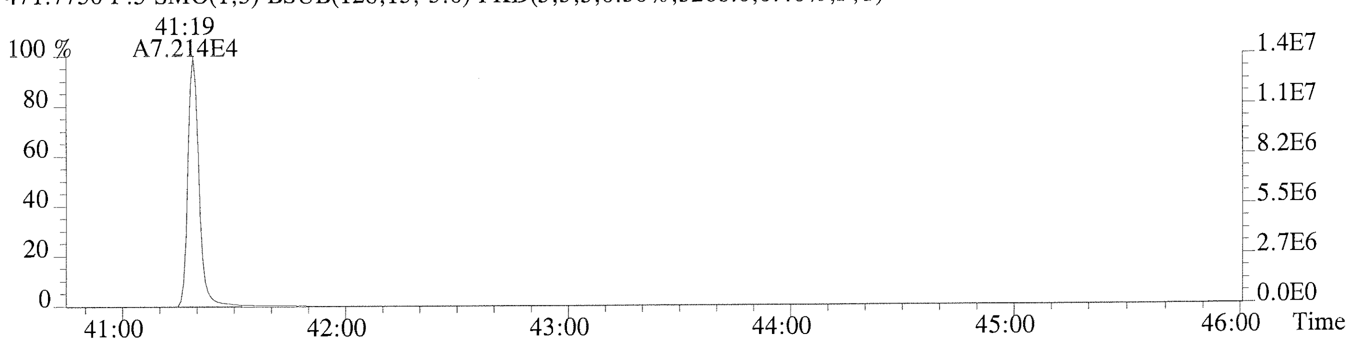
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4812.0,0.40%,F,T)



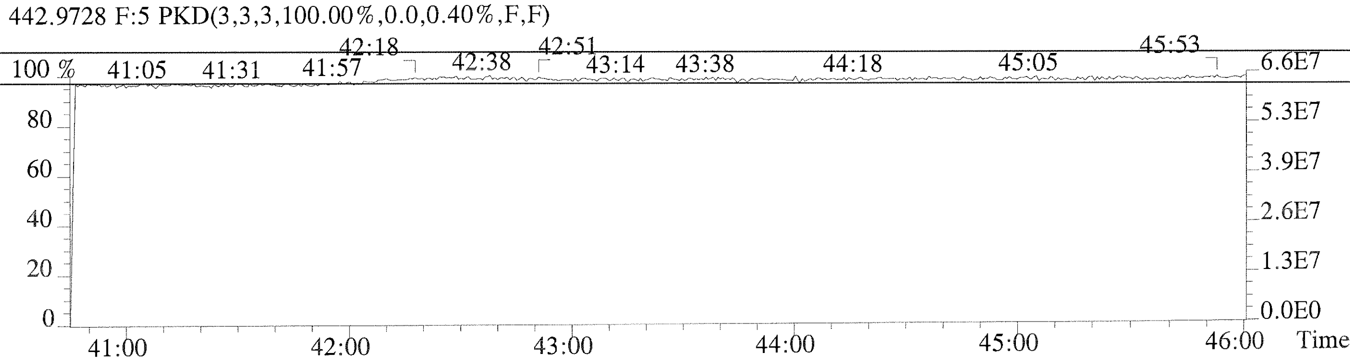
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3268.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 03/26/2014				
Instrument Name: E-HRMS-03	Calibration File Name: P14032516131				
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong				

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	x				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	x				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	x				
Were all calibration standards analyzed only once?	x				
Was the ICV analyzed after the ICAL, before analyzing samples?	x				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	x				
Were all target masses >10,000 resolving power at the beginning of the sequence?	x				
Were all target masses >10,000 resolving power at the end of the sequence?	x				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			x		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			x		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	x				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	x				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	x				
Were all first and last eluters adequately resolved in each function?	x				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			x		
Was the retention time of PCB 209 >55 min?			x		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			x		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?					
Calibration Standards					
Were there at least 5 calibration standards analyzed?	x				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			x		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	x				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	x				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 03/26/2014				
Instrument Name: E-HRMS-03	Calibration File Name: P14032516131				
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong				
Description	**Yes**	**No**	**NA**	**NR**	**ER#**
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	x				
Were area counts for the highest calibration standard below levels of saturation?	x				
Were manual integrations technically justified to correct for poor software integration?	x				1
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	x				
Were all calibration standards used in determining response factors?	x				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	x				
Did the RSD for RRFs for each native analyte meet method criteria?	x				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	x				
Were RFs for each labeled compound calculated for each calibration point?	x				
Did the RSD for RF for each labeled compound meet method criteria?	x				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	x				
Did all analytes meet method criteria for the ICV.	x				

Laboratory Review Checklist: Initial Calibration	
Method: 1613/8290	Process Date: 03/26/2014
Instrument Name: E-HRMS-03	Calibration File Name: P14032516131
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong
ER#[5]	**Description**
1	Manual Integration on CS0.5 in order to correct inconsistent baseline determinations between primary and secondary ions.

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Initial Calibration QC Checklist

ICAL Name: P14032516I3I

Date: 03/25/14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB_5MSUI	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	N/A	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cll Second QC: UKL

icalqc.xls 02-23-00

5DBC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5msui ID: 0.25 (mm) Instrument ID: E-HRMS-03

Init. Calib. Date: 03/25/14

Init. Calib.Times: 16:28:21

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	63680	P169969	25-MAR-14	16:28:21
66807	ICAL HRCC0.5/C╗	P169970	25-MAR-14	17:22:36
66798	ICAL HRCC1/CS1	P169971	25-MAR-14	18:10:10
D12-90-3B	ICAL HRCC2/CS2	P169972	25-MAR-14	18:58:18
63383	ICAL HRCC3/CS3	P169973	25-MAR-14	19:46:25
D12-90-3D	ICAL HRCC4/CS4	P169974	25-MAR-14	20:34:32
66799	ICAL HRCC5/CS5	P169975	25-MAR-14	21:22:40
60287	ICV 2ND SOURCE	P169976	25-MAR-14	22:10:47
D12-5-1B	STD	P169977	25-MAR-14	22:58:54

E1401160

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1140325.SPL

Last Modified: Wednesday, March 26, 2014 08:12:18 Central Daylight Time

Printed: Wednesday, March 26, 2014 11:19:50 Central Daylight Time

Page Position (1, 1)

P140325I613I / P140325 ~~B~~ M23I lee

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	03/25/14	15:03	P169968	WINDOW DEFINE	63680	LL	HRMS check 16:18	8290cas
2		16:28	P169969	WINDOW DEFINE	63680			8290cas
3		17:22	P169970	ICAL HRCC0.5/CS0.5	66807			8290cas
4		18:10	P169971	ICAL HRCC1/CS1	66798			8290cas
5		18:58	P169972	ICAL HRCC2/CS2	D12-90-3B			8290cas
6		19:46	P169973	ICAL HRCC3/CS3	63383			8290cas
7		20:34	P169974	ICAL HRCC4/CS4	D12-90-3D			8290cas
8		21:22	P169975	ICAL HRCC5/CS5	66799			8290cas
9		22:10	P169976	ICV2ND SOURCE	60287			8290cas
10		22:58	P169977	STD	D12-5-1B		HRMS check 07:35	8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
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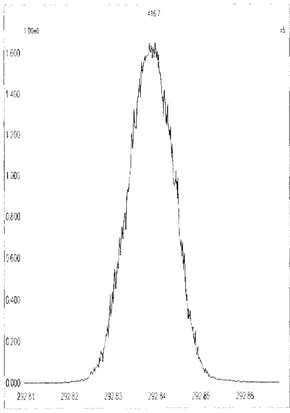
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			8290cas
26			---	---	---			8290cas
27			---	---	---			8290cas
28			---	---	---			8290cas
29			---	---	---			8290cas
30			---	---	---			8290cas
31			---	---	---			8290cas
32			---	---	---			8290cas
33			---	---	---			8290cas
34			---	---	---			8290cas
35	---	---	---	---		---	---	8290cas
36	---	---	---	---	---	---	---	8290cas
37	---	---	---	---	---	---	---	8290cas
38	---	---	---	---	---	---	---	8290cas
39	---	---	---	---	---	---	---	8290cas

Reviewed By: lee

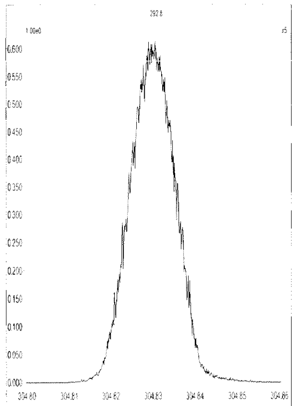
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:18:56 Central Daylight Time

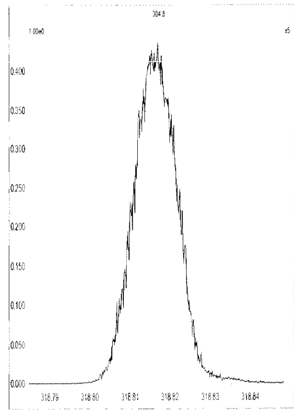
M 292.9824 R 12370



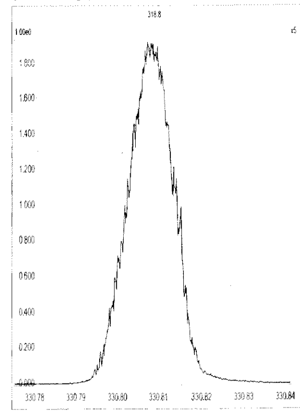
M 304.9824 R 12891



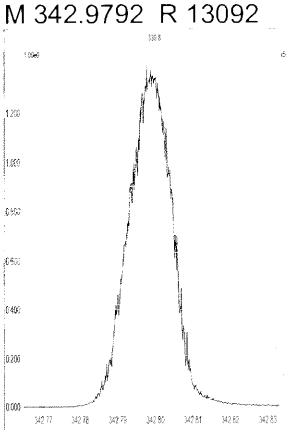
M 318.9792 R 13663



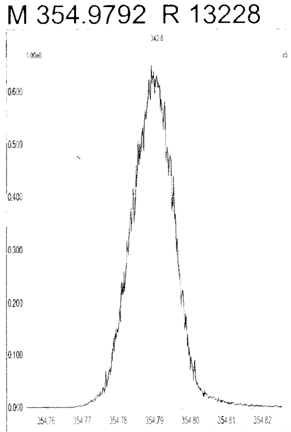
M 330.9792 R 13736



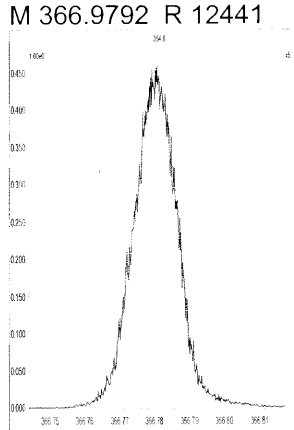
M 342.9792 R 13092



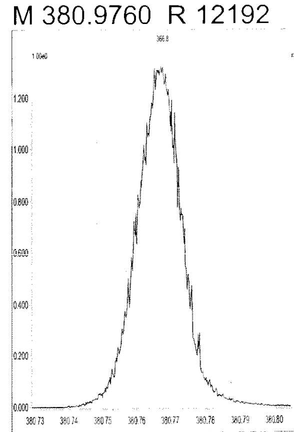
M 354.9792 R 13228



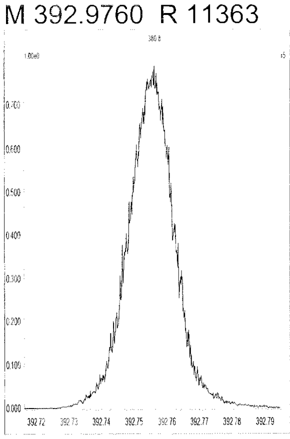
M 366.9792 R 12441



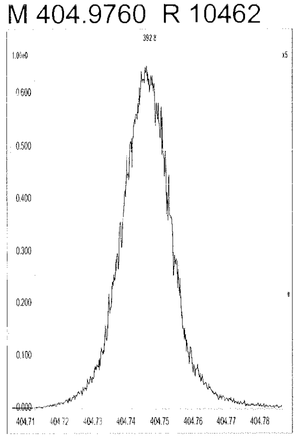
M 380.9760 R 12192



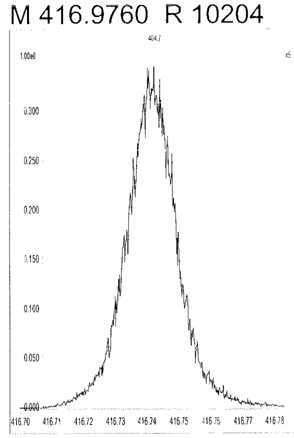
M 392.9760 R 11363



M 404.9760 R 10462



M 416.9760 R 10204

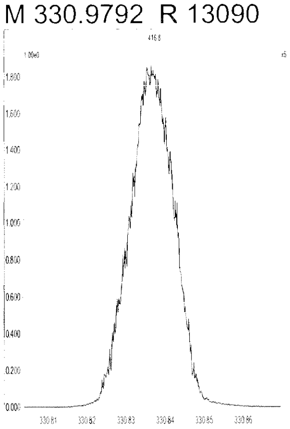


Experiment Calibration Report **MassLynx 4.1**

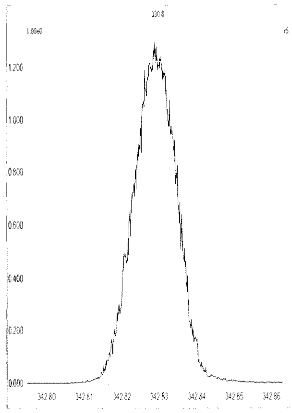
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:20:42 Central Daylight Time

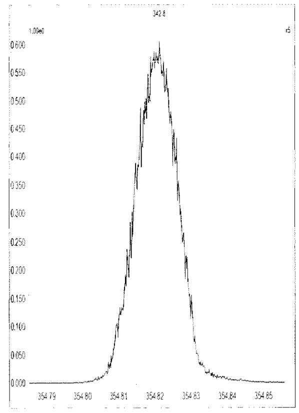
M 330.9792 R 13090



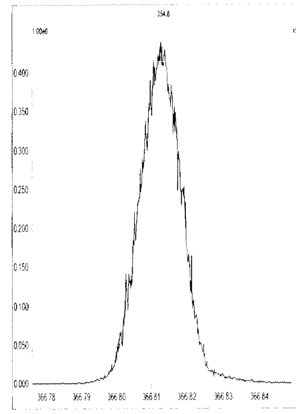
M 342.9792 R 13439



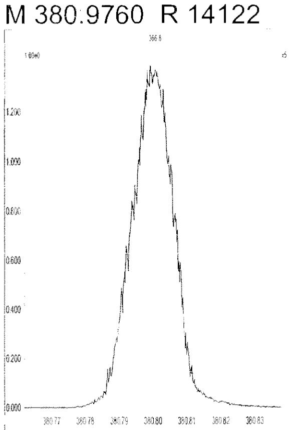
M 354.9792 R 13663



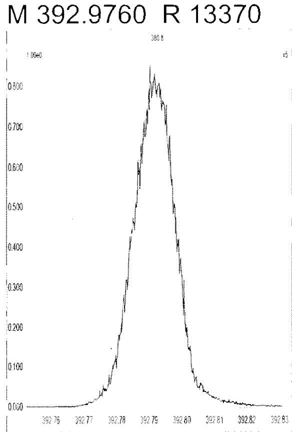
M 366.9792 R 13811



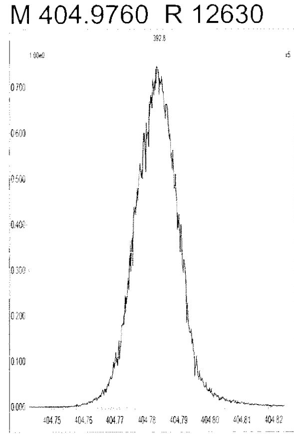
M 380.9760 R 14122



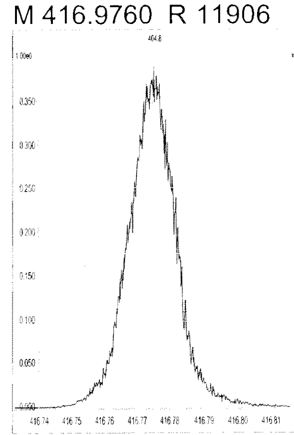
M 392.9760 R 13370



M 404.9760 R 12630



M 416.9760 R 11906

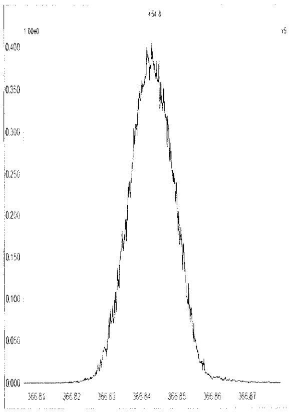


Experiment Calibration Report **MassLynx 4.1**

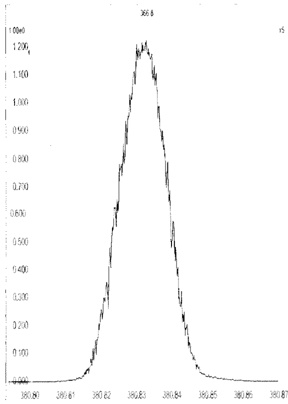
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:21:56 Central Daylight Time

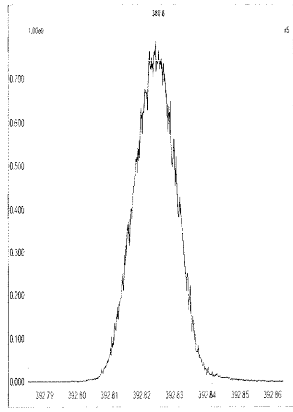
M 366.9792 R 12755



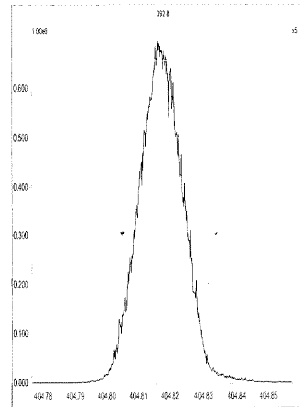
M 380.9760 R 13025



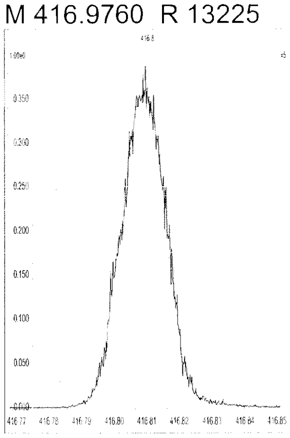
M 392.9760 R 13299



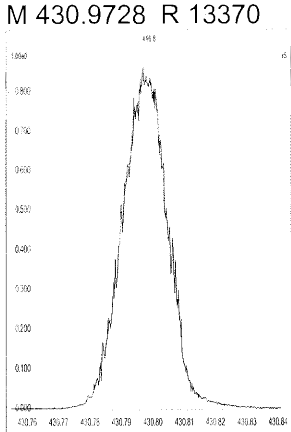
M 404.9760 R 13297



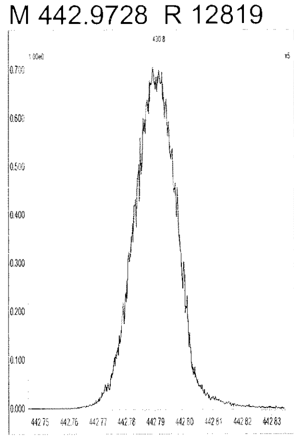
M 416.9760 R 13225



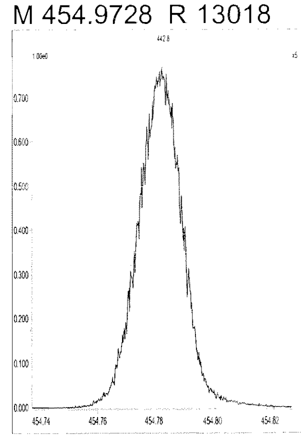
M 430.9728 R 13370



M 442.9728 R 12819



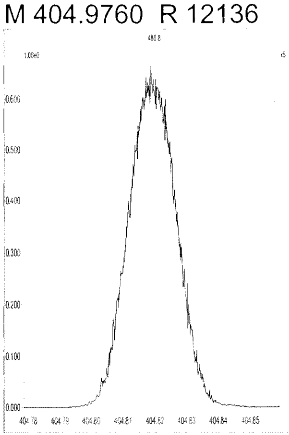
M 454.9728 R 13018



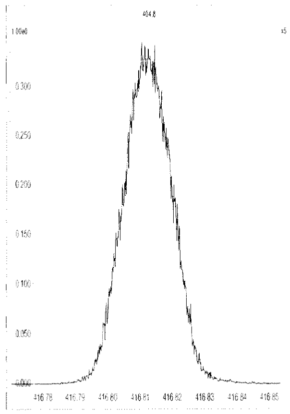
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:23:14 Central Daylight Time

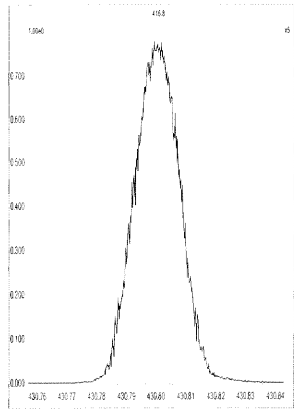
M 404.9760 R 12136



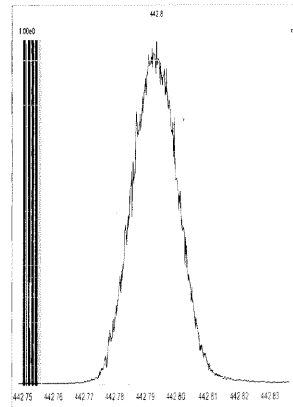
M 416.9760 R 12624



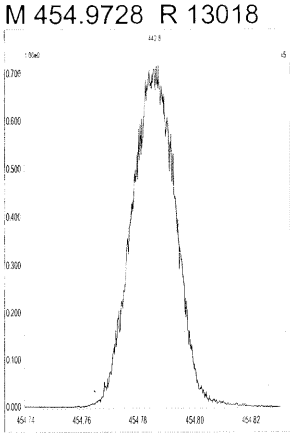
M 430.9728 R 13370



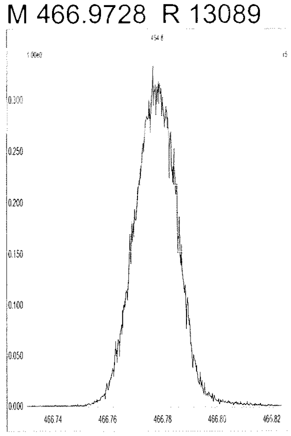
M 442.9728 R 13513



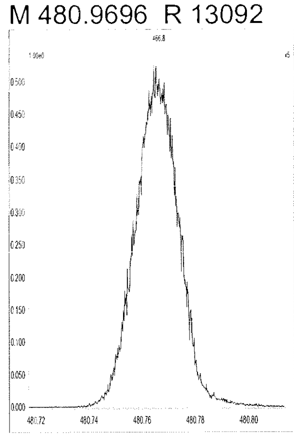
M 454.9728 R 13018



M 466.9728 R 13089



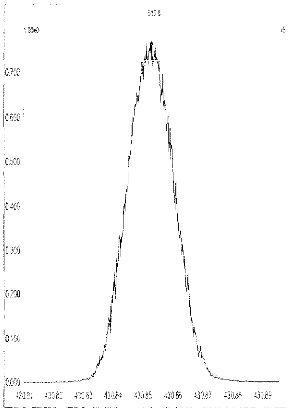
M 480.9696 R 13092



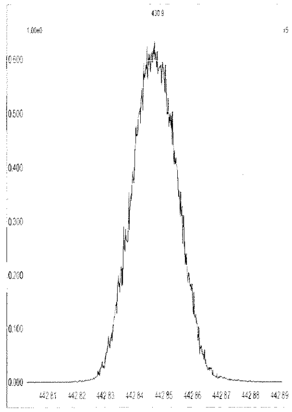
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:24:15 Central Daylight Time

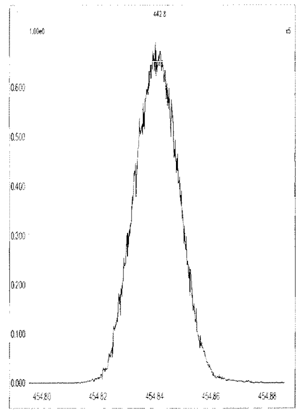
M 430.9728 R 12021



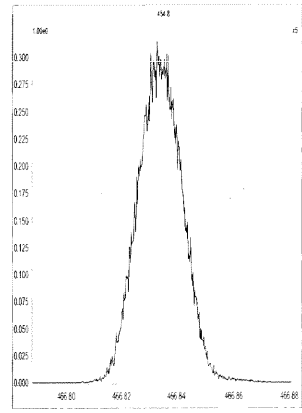
M 442.9728 R 12627



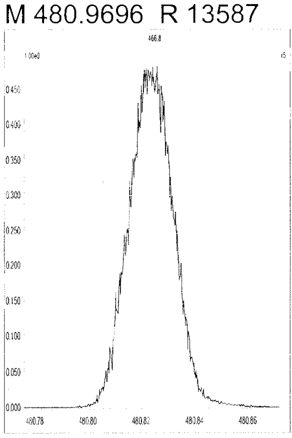
M 454.9728 R 12689



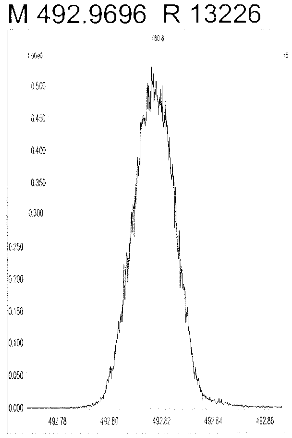
M 466.9728 R 12818



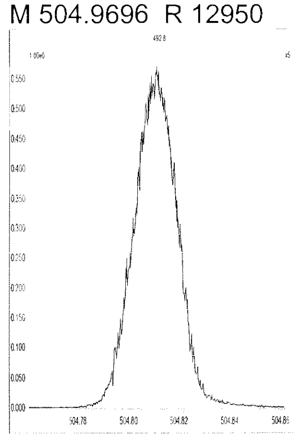
M 480.9696 R 13587



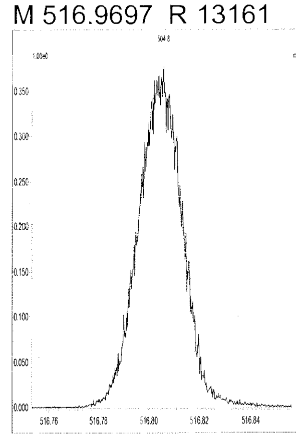
M 492.9696 R 13226



M 504.9696 R 12950



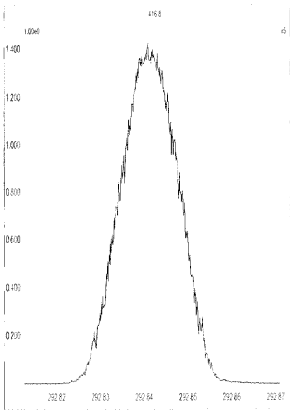
M 516.9697 R 13161



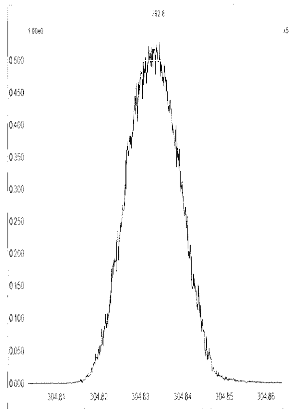
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:35:40 Central Daylight Time

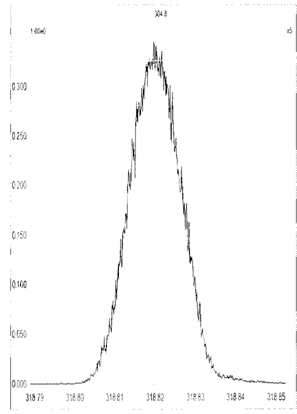
M 292.9824 R 10368



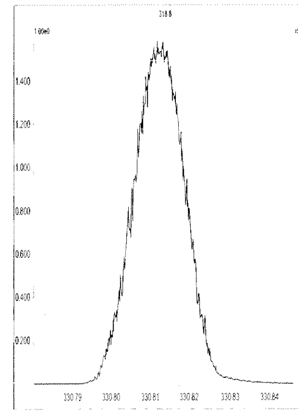
M 304.9824 R 10682



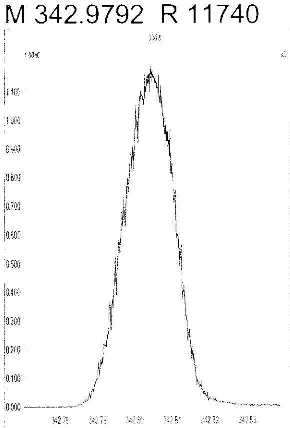
M 318.9792 R 11314



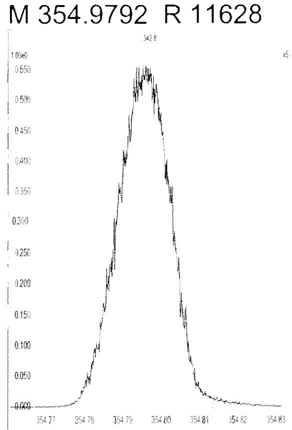
M 330.9792 R 11520



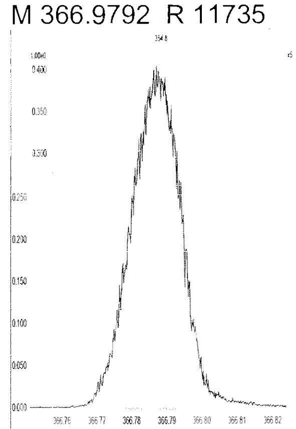
M 342.9792 R 11740



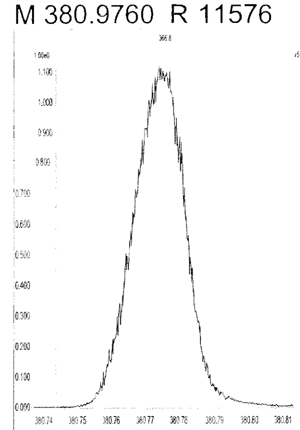
M 354.9792 R 11628



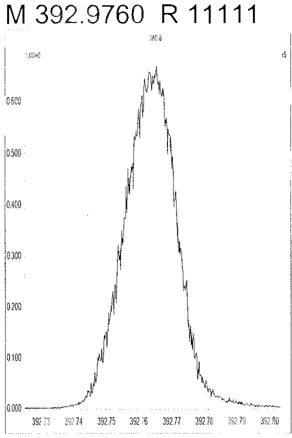
M 366.9792 R 11735



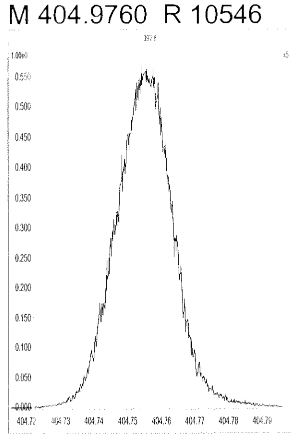
M 380.9760 R 11576



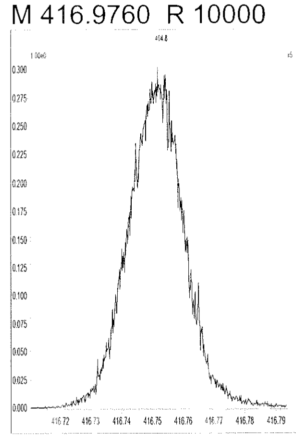
M 392.9760 R 11111



M 404.9760 R 10546



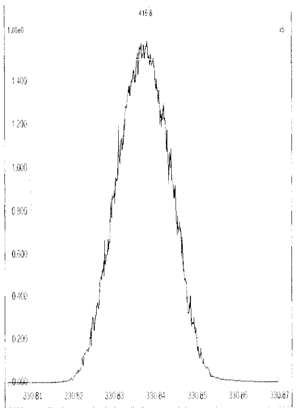
M 416.9760 R 10000



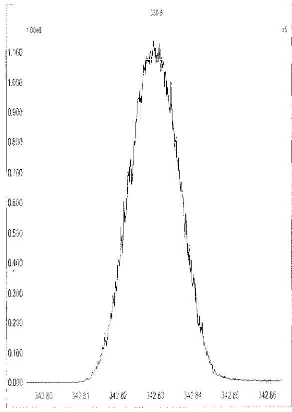
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:36:50 Central Daylight Time

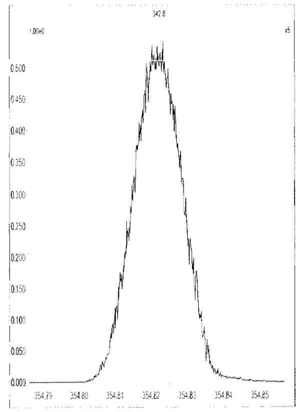
M 330.9792 R 10965



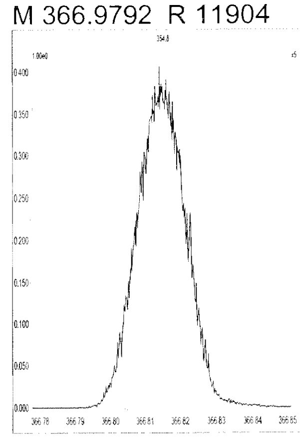
M 342.9792 R 11109



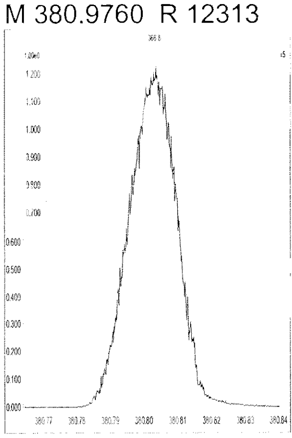
M 354.9792 R 11963



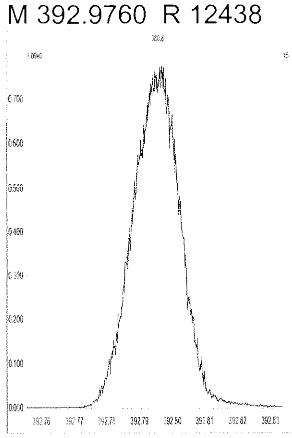
M 366.9792 R 11904



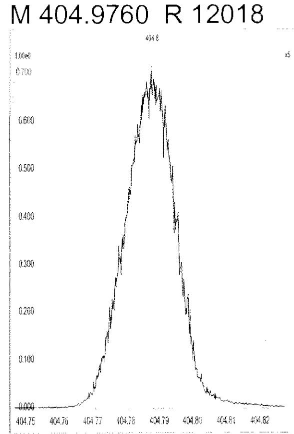
M 380.9760 R 12313



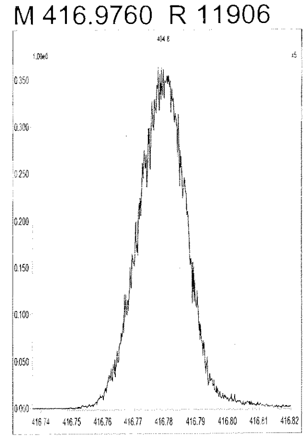
M 392.9760 R 12438



M 404.9760 R 12018



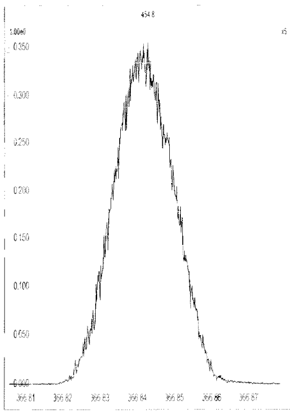
M 416.9760 R 11906



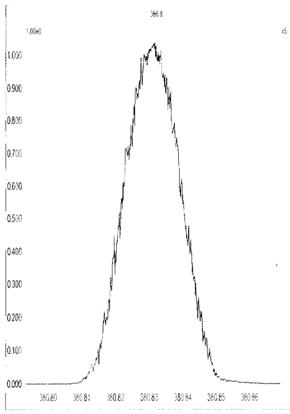
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:37:59 Central Daylight Time

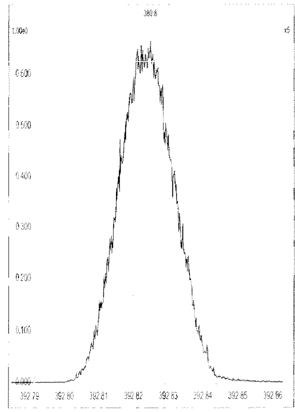
M 366.9792 R 10374



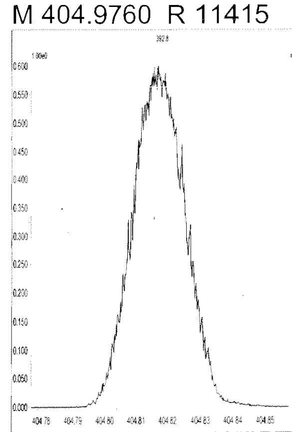
M 380.9760 R 10728



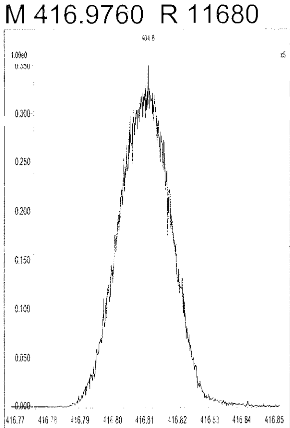
M 392.9760 R 11014



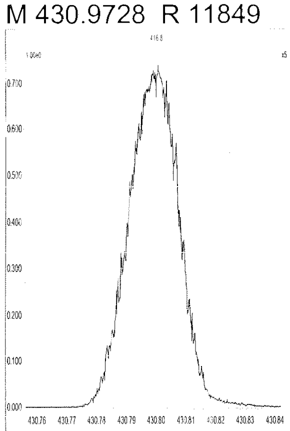
M 404.9760 R 11415



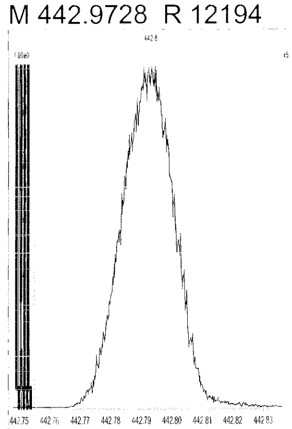
M 416.9760 R 11680



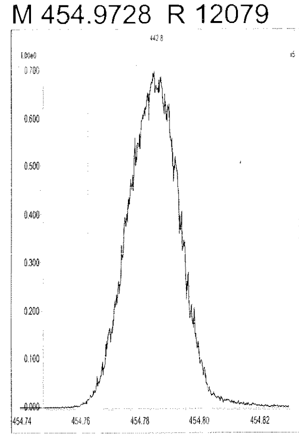
M 430.9728 R 11849



M 442.9728 R 12194



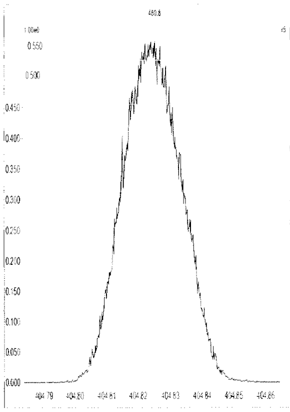
M 454.9728 R 12079



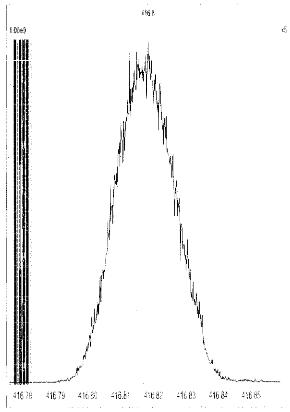
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:38:59 Central Daylight Time

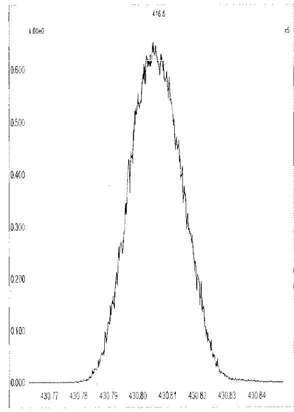
M 404.9760 R 10040



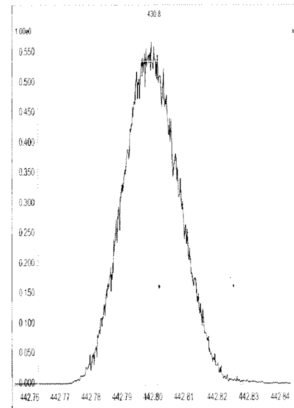
M 416.9760 R 10286



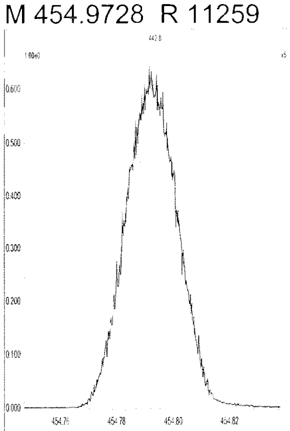
M 430.9728 R 10962



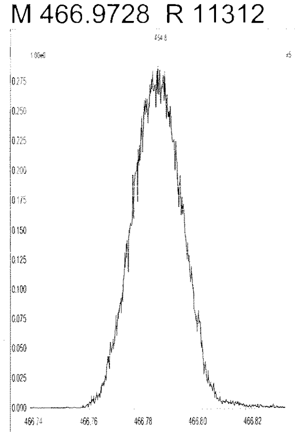
M 442.9728 R 10916



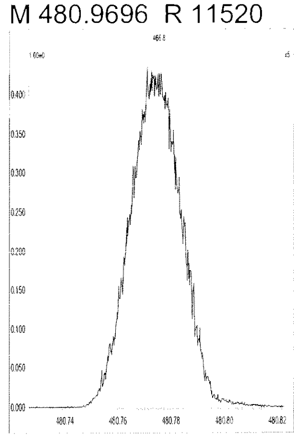
M 454.9728 R 11259



M 466.9728 R 11312



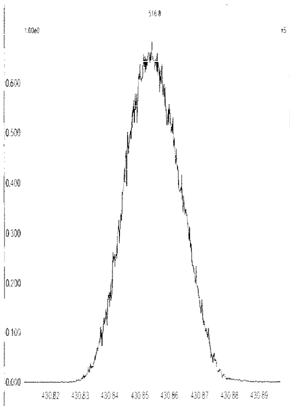
M 480.9696 R 11520



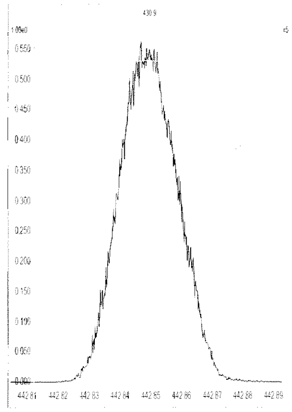
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:43:00 Central Daylight Time

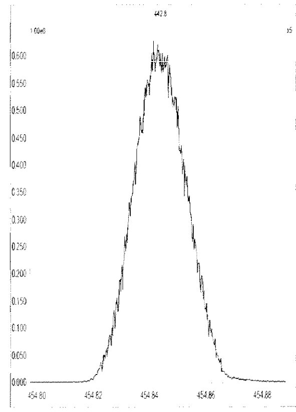
M 430.9728 R 10415



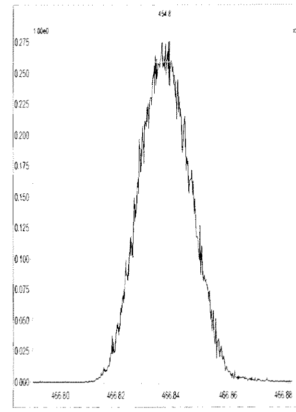
M 442.9728 R 10414



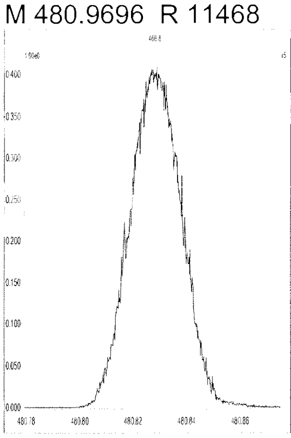
M 454.9728 R 10822



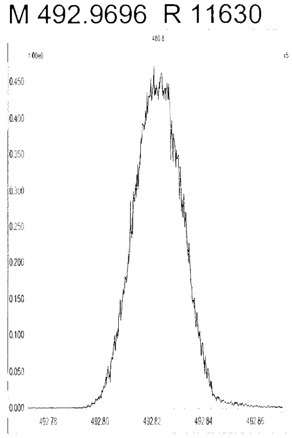
M 466.9728 R 11262



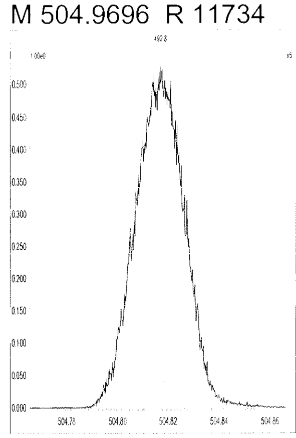
M 480.9696 R 11468



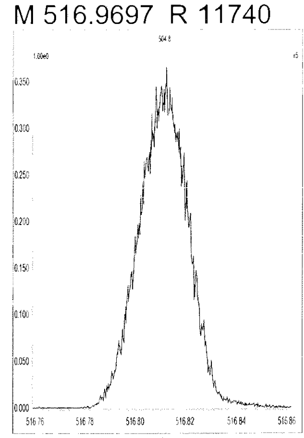
M 492.9696 R 11630



M 504.9696 R 11734



M 516.9697 R 11740



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

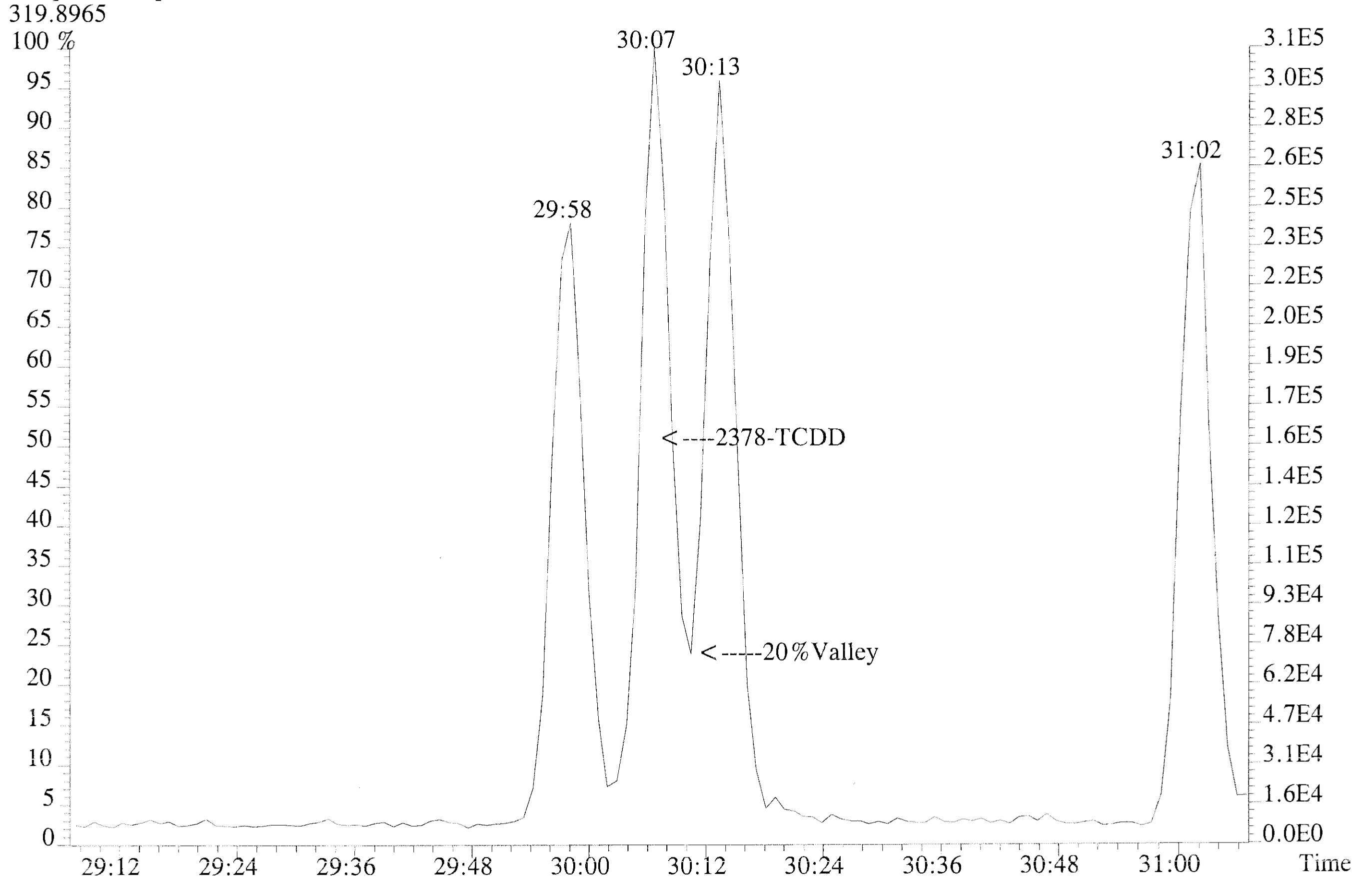
WDM

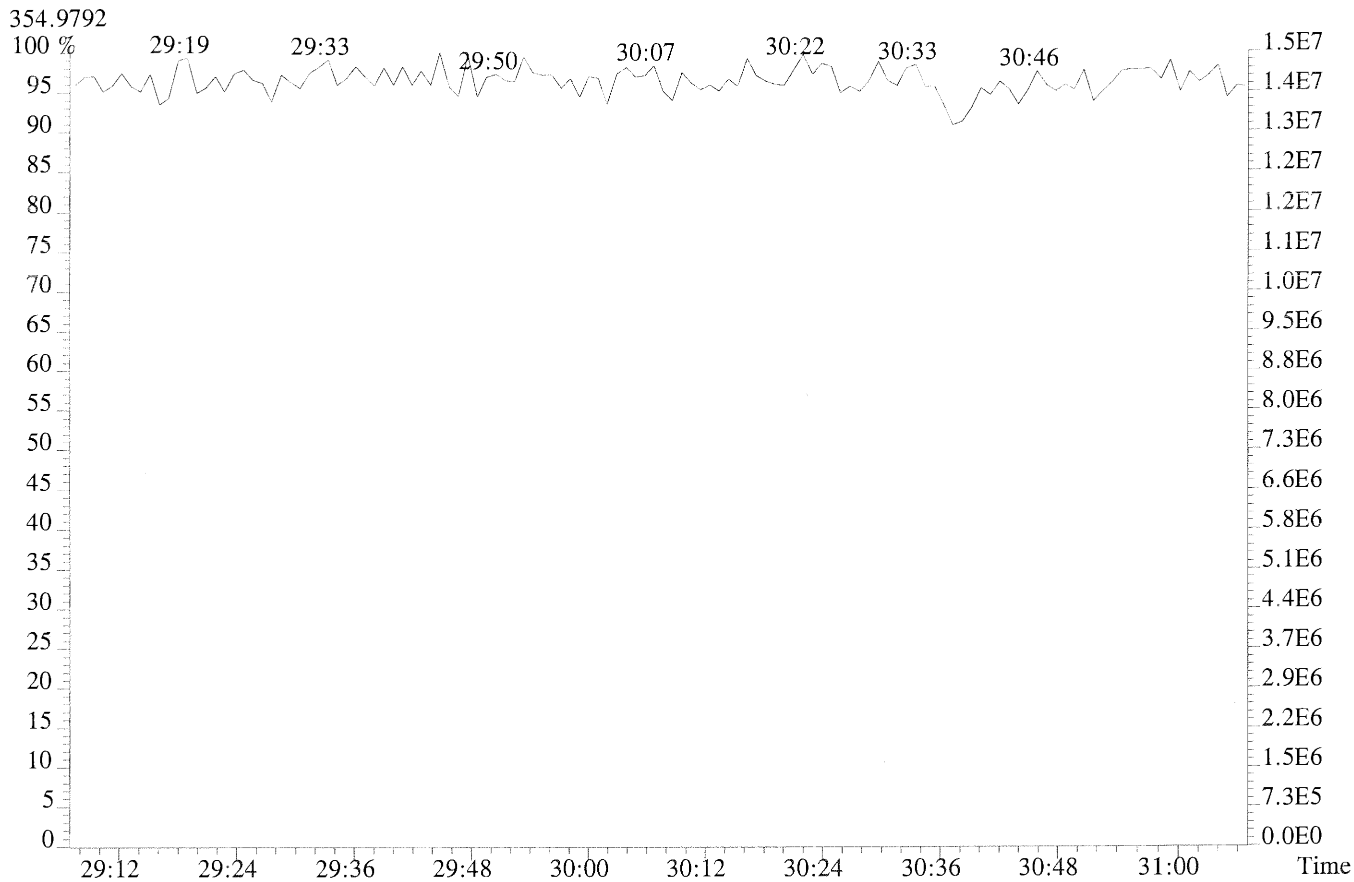
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______________ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P169969
Date Analyzed: 25-MAR-2014
Time Analyzed: 16:28:21

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:24	31:11
TCDD	27:10	31:02
PeCDF	31:07	35:07
PeCDD	32:32	34:51
HxCDF	35:43	38:08
HxCDD	36:13	37:44
HpCDF	39:20	40:47
HpCDD	39:35	40:17

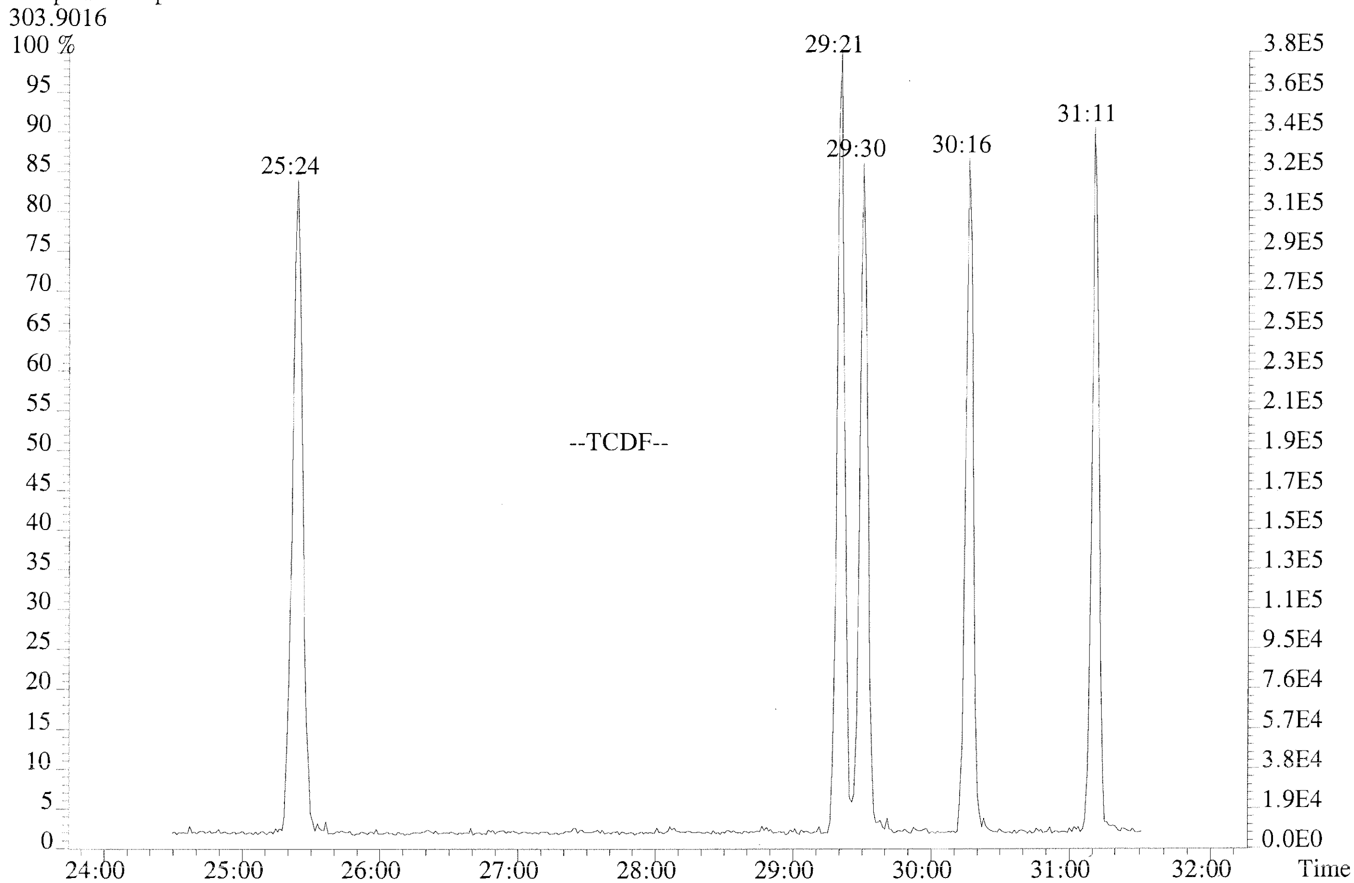
% Valley 2378-TCDD: 20 %

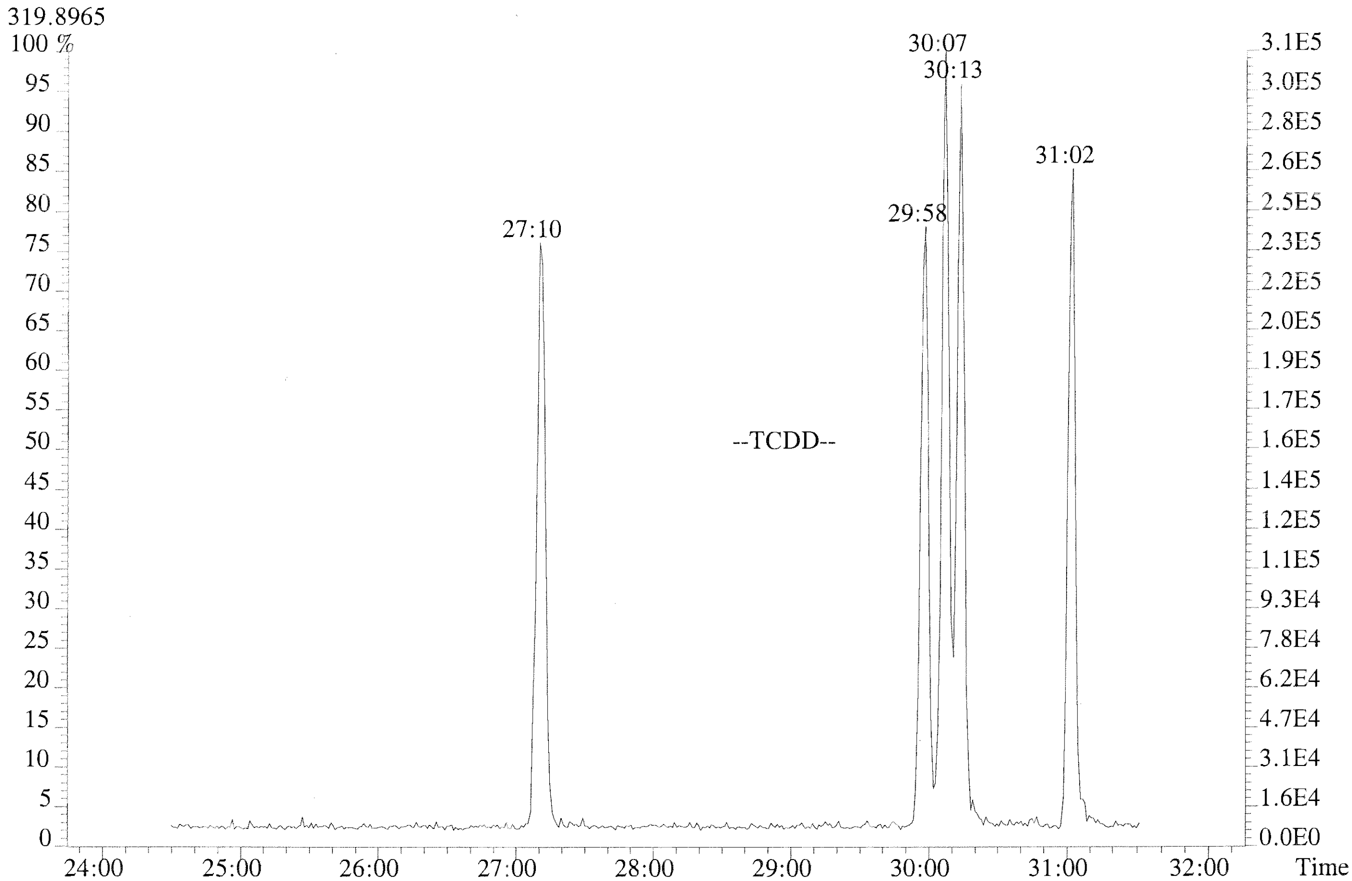
File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





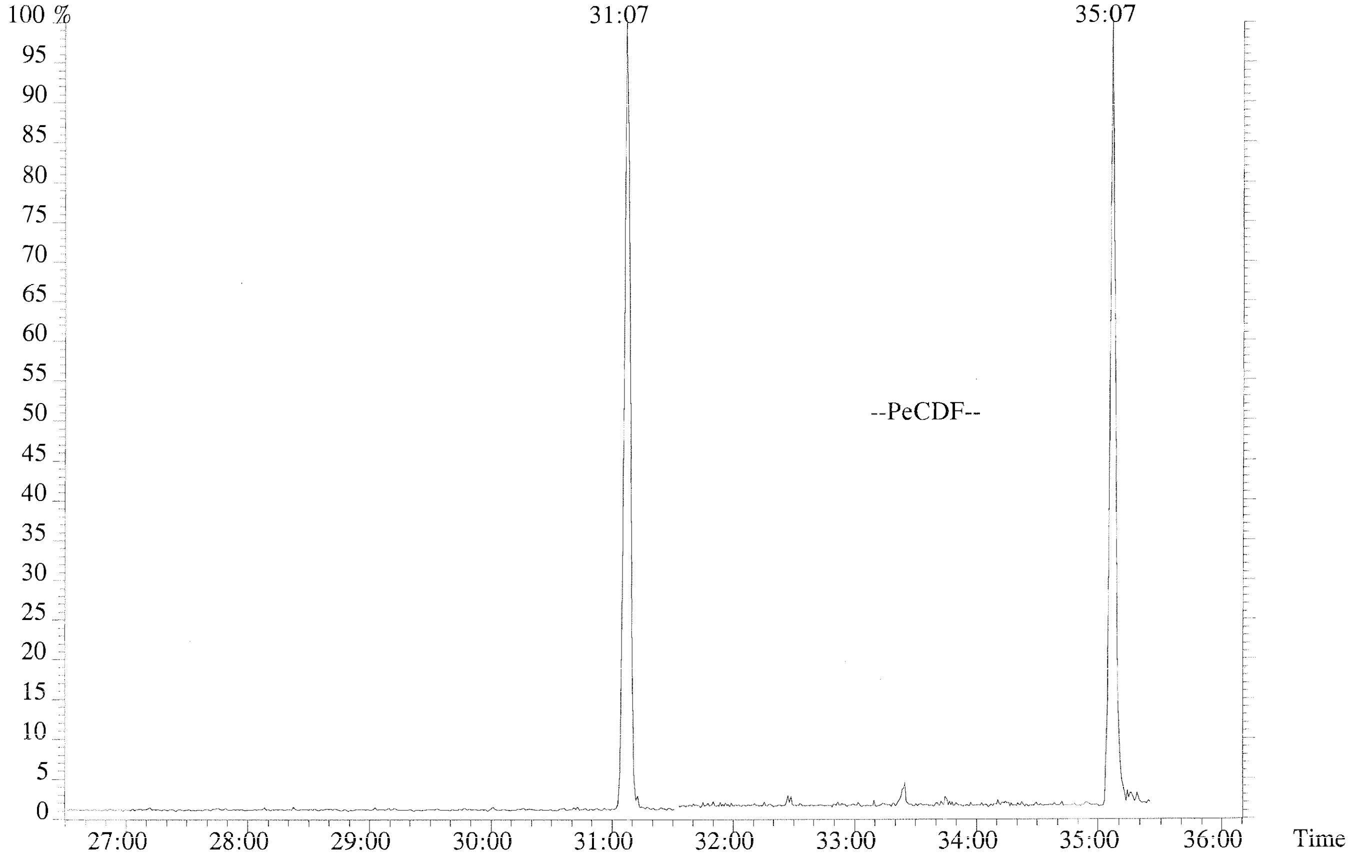
File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



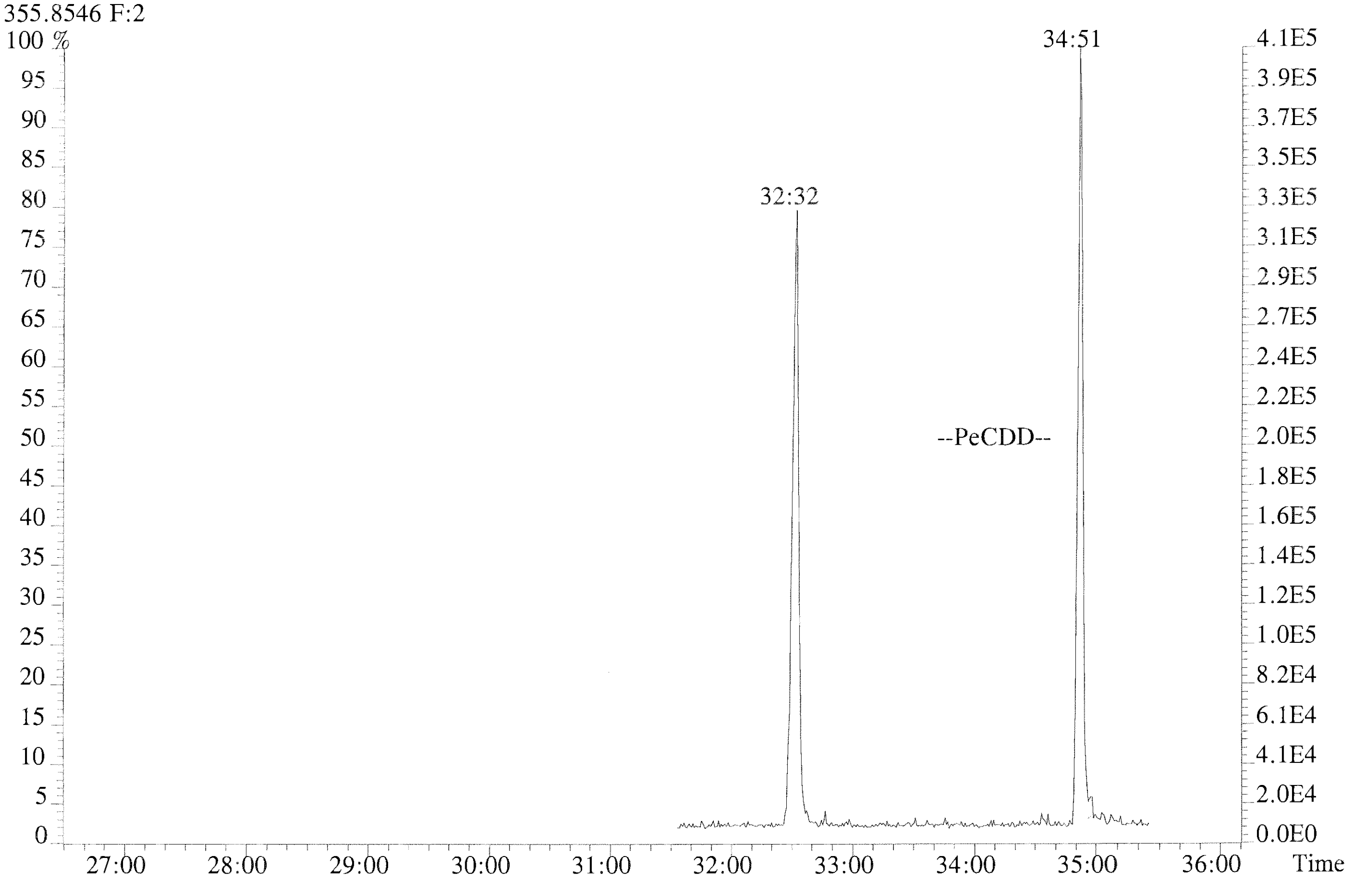


File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

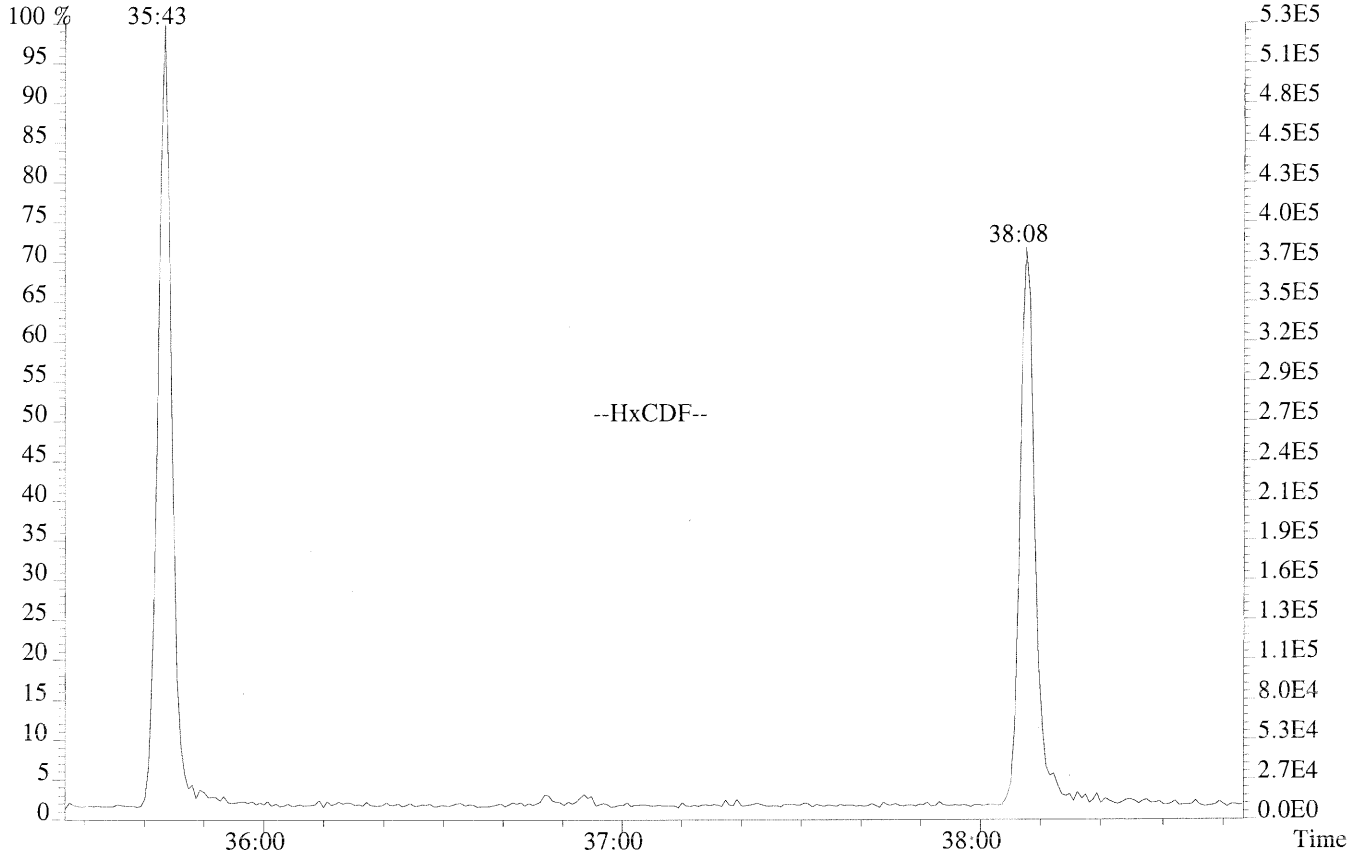
339.8597,339.8597 F:2



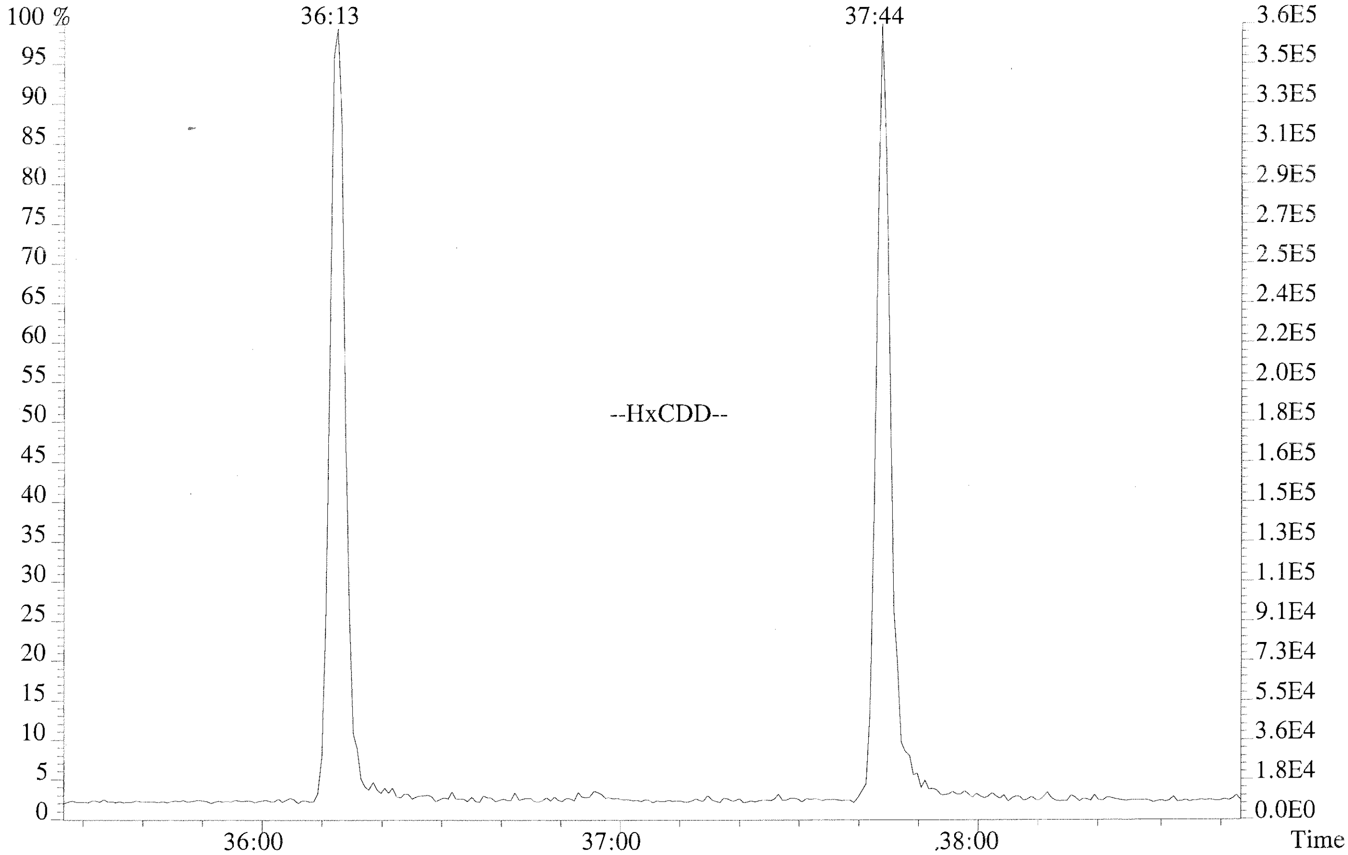
355.8546 F:2



File:P169969 #1-298 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

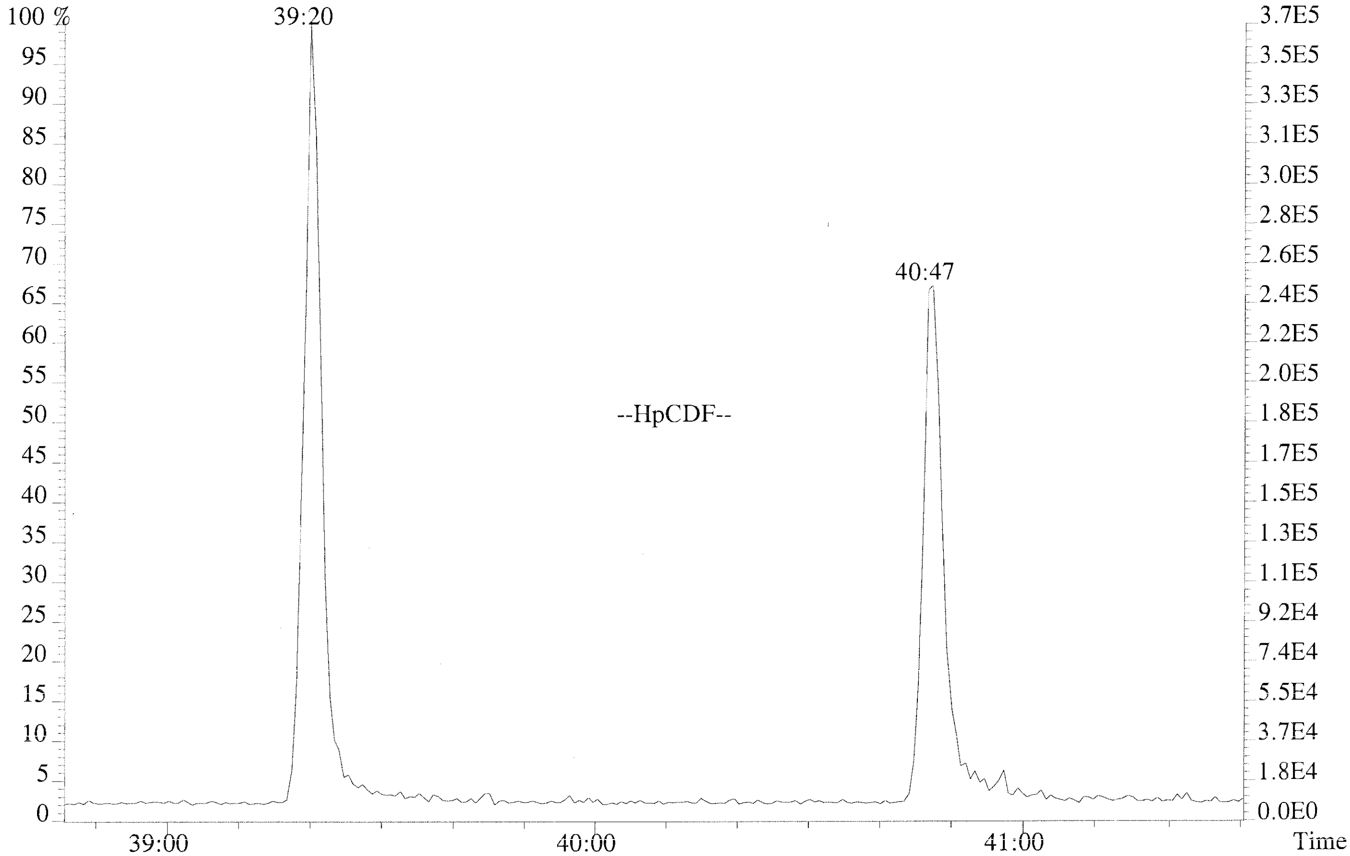


389.8157 F:3

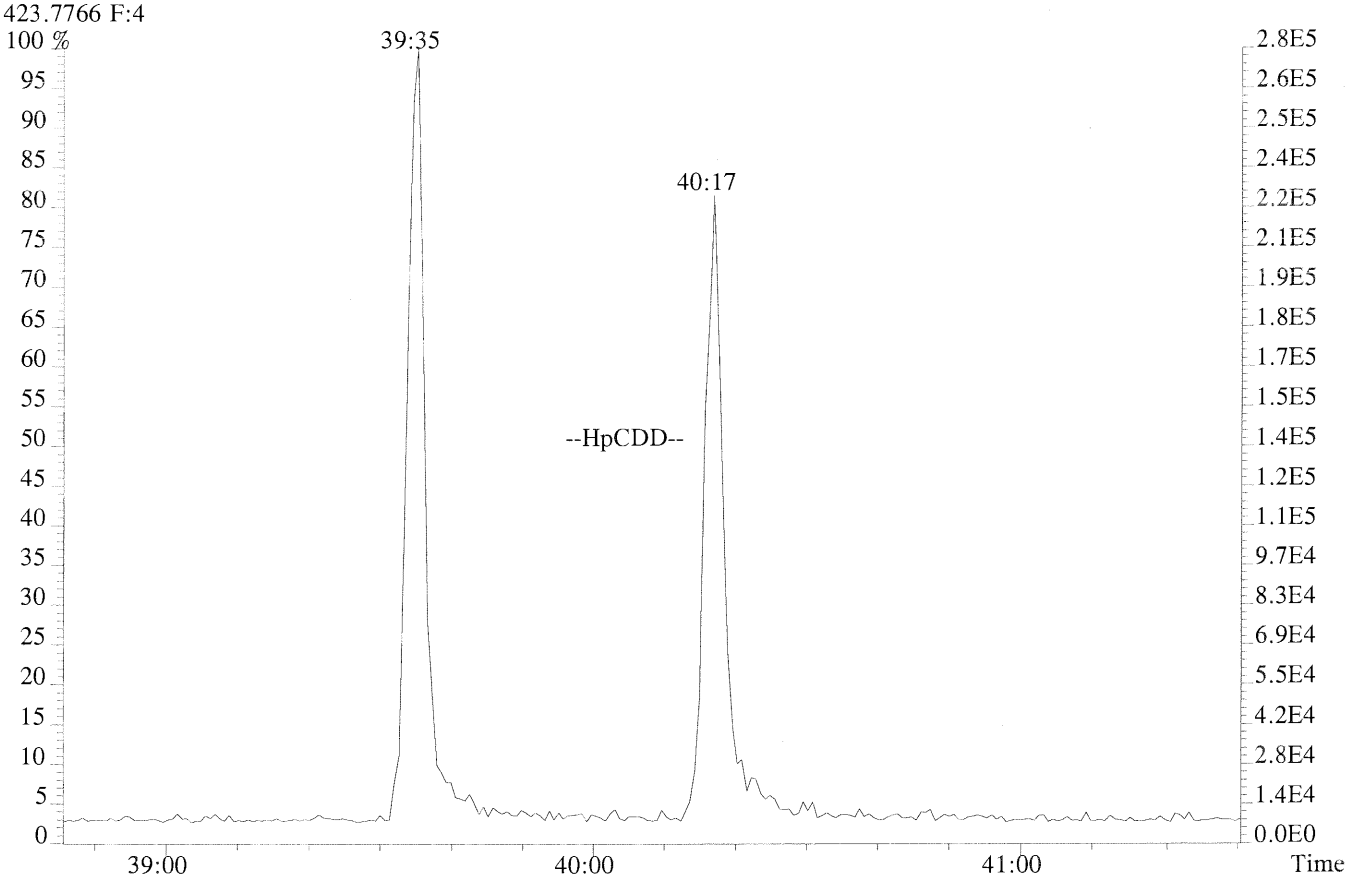


File:P169969 #1-250 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental　　Contract No.:
Lab Code: ALSTX　　Case No.:　　TO No.:　　SDG No.:
GC Column: DB-5msui　　ID: 0.25(mm)　　Instrument ID: E-HRMS-03
Init. Calib. Date(s).: 03/25/14　　Analyte Table: 1613P
Init. Calib. Time.: 16:28:21

	RR/RRF							MEAN	
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	0.95	1.00	0.87	0.91	0.96	0.98	0.95	4.91	+/-20%
1,2,3,7,8-PeCDF	1.01	1.01	1.02	1.03	1.04	0.99	1.02	1.64	+/-20%
2,3,4,7,8-PeCDF	0.91	0.97	0.96	0.97	0.99	1.06	0.98	5.08	+/-20%
1,2,3,4,7,8-HxCDF	1.16	1.27	1.25	1.26	1.26	1.24	1.24	3.16	+/-20%
1,2,3,6,7,8-HxCDF	1.17	1.17	1.17	1.16	1.18	1.21	1.18	1.60	+/-20%
2,3,4,6,7,8-HxCDF	1.11	1.17	1.12	1.15	1.18	1.17	1.15	2.25	+/-20%
1,2,3,7,8,9-HxCDF	1.06	1.16	1.14	1.17	1.20	1.19	1.15	4.31	+/-20%
1,2,3,4,6,7,8-HpCDF	1.39	1.41	1.37	1.42	1.43	1.39	1.40	1.56	+/-20%
1,2,3,4,7,8,9-HpCDF	1.21	1.33	1.32	1.33	1.34	1.42	1.32	5.16	+/-20%
OCDF	1.29	1.29	1.31	1.32	1.37	1.26	1.31	2.73	+/-20%
2,3,7,8-TCDD	1.06	1.04	1.00	1.02	1.05	1.07	1.04	2.55	+/-20%
1,2,3,7,8-PeCDD	0.95	0.91	0.91	0.93	0.95	0.99	0.94	3.15	+/-20%
1,2,3,4,7,8-HxCDD	1.03	1.02	1.00	1.02	1.04	1.14	1.04	4.72	+/-20%
1,2,3,6,7,8-HxCDD	0.97	1.01	1.00	1.00	1.03	0.93	0.99	3.43	+/-20%
1,2,3,7,8,9-HxCDD	1.07	1.14	1.07	1.09	1.12	1.06	1.09	2.98	+/-20%
1,2,3,4,6,7,8-HpCDD	0.98	1.03	1.01	1.03	1.03	1.01	1.02	2.05	+/-20%
OCDD	1.05	1.14	1.08	1.08	1.11	1.01	1.08	4.34	+/-20%
13C-2,3,7,8-TCDF	1.39	1.40	1.42	1.40	1.69	1.42	1.45	7.91	+/-35%
13C-1,2,3,7,8-PeCDF	1.61	1.64	1.66	1.73	2.55	1.91	1.85	19.37	+/-35%
13C-2,3,4,7,8-PeCDF	1.60	1.62	1.63	1.69	2.45	1.82	1.80	18.08	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.03	1.03	1.03	1.02	1.02	1.13	1.05	4.17	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.19	1.20	1.18	1.21	1.20	1.23	1.20	1.38	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.12	1.11	1.12	1.12	1.09	1.17	1.12	2.15	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.02	1.02	1.01	1.02	1.01	1.08	1.03	2.61	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.87	0.89	0.89	0.91	0.91	0.98	0.91	4.22	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.78	0.80	0.81	0.82	0.83	0.85	0.81	2.99	+/-35%
13C-2,3,7,8-TCDD	0.99	0.95	0.98	0.98	1.40	1.01	1.05	16.37	+/-35%
13C-1,2,3,7,8-PeCDD	1.17	1.17	1.18	1.23	1.83	1.33	1.32	19.72	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.88	0.87	0.85	0.85	0.83	0.89	0.86	2.47	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.89	0.91	0.93	0.94	0.94	1.06	0.95	6.27	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.83	0.84	0.85	0.85	0.86	0.94	0.86	4.39	+/-35%
13C-OCDD	0.69	0.72	0.74	0.75	0.76	0.89	0.76	8.98	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	0.98	1.10	1.01	1.04	1.52	1.10	1.12	17.58	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5msui ID: 0.25(mm) Instrument ID: E-HRMS-03
Init. Calib. Date(s).: 03/25/14 Analyte Table: 1613P
Init. Calib. Time.: 16:28:21

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.73	0.80	0.75	0.75	0.76	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.45	1.53	1.61	1.59	1.58	1.56		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.47	1.67	1.52	1.55	1.59	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.33	1.28	1.23	1.26	1.23	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.20	1.16	1.22	1.22	1.23	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.16	1.27	1.28	1.22	1.26	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.34	1.24	1.19	1.22	1.24	1.24		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.08	1.09	1.01	1.04	1.04	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.16	1.02	1.04	1.03	1.04	1.04		0.88-1.20
OCDF	442/444	0.85	0.88	0.88	0.89	0.91	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.82	0.80	0.83	0.78	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.52	1.42	1.59	1.55	1.56	1.58		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.17	1.40	1.24	1.24	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.16	1.25	1.24	1.24	1.24	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.24	1.21	1.21	1.23	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	0.98	1.14	0.99	1.06	1.04	1.05		0.88-1.20
OCDD	458/460	0.86	0.94	0.91	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.80	0.79	0.78	0.78	0.79	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.55	1.57	1.56	1.57	1.58	1.53		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.58	1.57	1.57	1.58	1.54		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.51	0.52	0.53	0.51	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.53	0.52	0.53	0.53	0.51		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.51	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.52	0.51	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.44	0.44	0.45	0.44	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.43	0.45	0.44	0.44	0.44		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.77	0.79	0.80	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.57	1.57	1.58	1.59	1.56	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.27	1.26	1.27	1.28	1.27		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.28	1.27	1.29	1.27	1.27		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.05	1.06	1.07	1.05	1.07		0.88-1.20
13C-OCDD	470/472	0.89	0.89	0.90	0.90	0.91	0.90		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.79	0.79	0.78	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.26	1.27	1.25	1.30	1.25		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66807

Run #1 Filename P169970 Samp: 1 Inj: 1 Acquired: 25-MAR-14 17:22:36
Processed: 26-MAR-14 10:00:38 Sample ID: ICAL HRCC0.5/CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	7.182e+01	9.880e+01	0.73	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	6.200e+02	4.274e+02	1.45	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	5.588e+02	3.809e+02	1.47	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	5.002e+02	3.763e+02	1.33	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	5.547e+02	4.624e+02	1.20	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	4.880e+02	4.206e+02	1.16	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	4.525e+02	3.374e+02	1.34	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	4.579e+02	4.253e+02	1.08	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	3.684e+02	3.176e+02	1.16	yes	no	1.324
10	Unk	OCDF	43:24	5.998e+02	7.078e+02	0.85	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	6.047e+01	7.399e+01	0.82	yes	yes	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	4.303e+02	2.825e+02	1.52	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	3.557e+02	3.030e+02	1.17	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	3.382e+02	2.927e+02	1.16	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	3.807e+02	3.104e+02	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.942e+02	3.004e+02	0.98	yes	no	1.016
17	Unk	OCDD	43:11	4.945e+02	5.743e+02	0.86	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.190e+04	3.976e+04	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	5.047e+04	3.247e+04	1.55	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	5.043e+04	3.212e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.063e+04	3.961e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.385e+04	4.588e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	2.230e+04	4.304e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	2.035e+04	3.912e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	1.555e+04	3.539e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.394e+04	3.151e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.234e+04	2.847e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	3.687e+04	2.346e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	2.863e+04	2.265e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	2.903e+04	2.291e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	2.485e+04	2.369e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	3.823e+04	4.282e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.289e+04	2.865e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.259e+04	2.579e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	1.268e+02				no	1.125

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

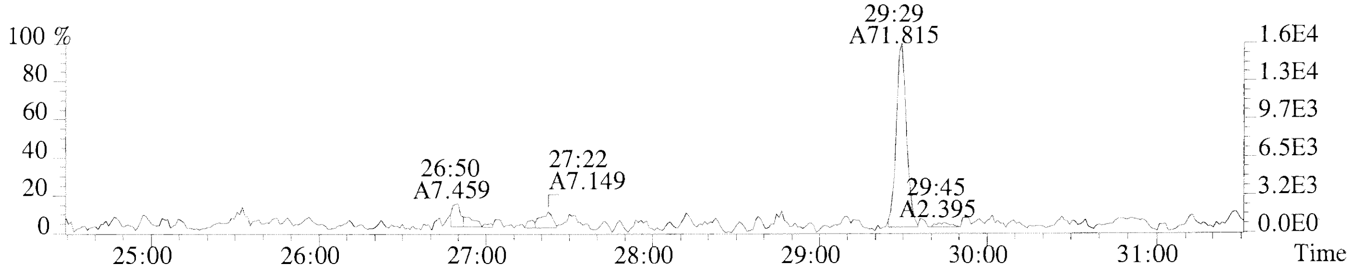
CLIENT ID.
66807

Run #1 Filename P169970 Samp: 1 Inj: 1 Acquired: 25-MAR-14 17:22:36
Processed: 26-MAR-14 10:00:381 LAB. ID: ICAL HRCC0.5/CS0.5

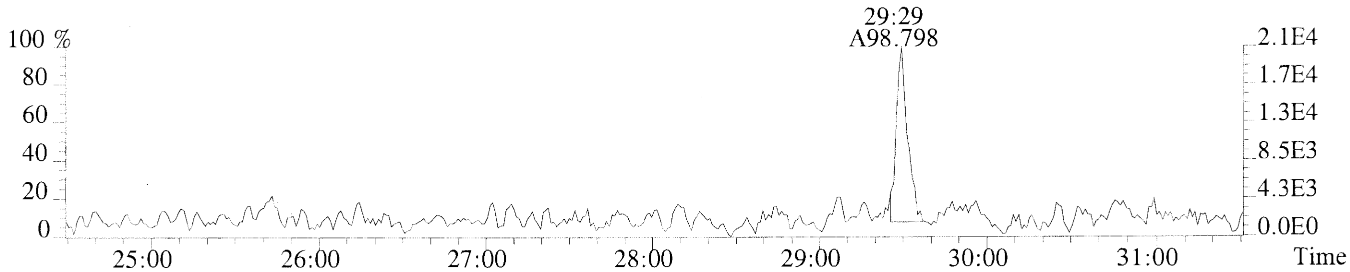
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+04	9.57e+02	1.6e+01	1.98e+04	1.56e+03	1.3e+01
2	1,2,3,7,8-PeCDF	1.21e+05	7.36e+02	1.6e+02	8.24e+04	1.31e+03	6.3e+01
3	2,3,4,7,8-PeCDF	1.06e+05	7.36e+02	1.4e+02	7.29e+04	1.31e+03	5.6e+01
4	1,2,3,4,7,8-HxCDF	1.14e+05	1.66e+03	6.9e+01	7.87e+04	1.25e+03	6.3e+01
5	1,2,3,6,7,8-HxCDF	1.05e+05	1.66e+03	6.3e+01	9.39e+04	1.25e+03	7.5e+01
6	2,3,4,6,7,8-HxCDF	1.07e+05	1.66e+03	6.5e+01	8.65e+04	1.25e+03	6.9e+01
7	1,2,3,7,8,9-HxCDF	9.38e+04	1.66e+03	5.7e+01	7.24e+04	1.25e+03	5.8e+01
8	1,2,3,4,6,7,8-HpCDF	9.01e+04	9.12e+02	9.9e+01	8.98e+04	1.59e+03	5.6e+01
9	1,2,3,4,7,8,9-HpCDF	6.66e+04	9.12e+02	7.3e+01	5.77e+04	1.59e+03	3.6e+01
10	OCDF	1.01e+05	1.29e+03	7.9e+01	1.03e+05	1.52e+03	6.8e+01
11	2,3,7,8-TCDD	1.37e+04	1.15e+03	1.2e+01	1.69e+04	1.26e+03	1.3e+01
12	1,2,3,7,8-PeCDD	8.11e+04	1.42e+03	5.7e+01	5.57e+04	9.88e+02	5.6e+01
13	1,2,3,4,7,8-HxCDD	7.98e+04	1.12e+03	7.1e+01	6.82e+04	1.10e+03	6.2e+01
14	1,2,3,6,7,8-HxCDD	6.99e+04	1.12e+03	6.2e+01	6.35e+04	1.10e+03	5.8e+01
15	1,2,3,7,8,9-HxCDD	8.12e+04	1.12e+03	7.2e+01	6.37e+04	1.10e+03	5.8e+01
16	1,2,3,4,6,7,8-HpCDD	5.92e+04	8.92e+02	6.6e+01	5.31e+04	7.72e+02	6.9e+01
17	OCDD	8.01e+04	7.84e+02	1.0e+02	8.83e+04	1.02e+03	8.6e+01
18	13C-2,3,7,8-TCDF	6.98e+06	1.91e+03	3.7e+03	8.69e+06	1.89e+03	4.6e+03
19	13C-1,2,3,7,8-PeCDF	9.61e+06	7.96e+02	1.2e+04	6.23e+06	1.13e+03	5.5e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	7.96e+02	1.3e+04	6.48e+06	1.13e+03	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.46e+06	1.45e+03	3.1e+03	8.59e+06	2.18e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.82e+06	1.45e+03	3.3e+03	9.31e+06	2.18e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	4.72e+06	1.45e+03	3.3e+03	9.00e+06	2.18e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.06e+06	1.45e+03	2.8e+03	7.75e+06	2.18e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.19e+06	2.01e+03	1.6e+03	7.20e+06	3.46e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	2.01e+03	1.3e+03	5.70e+06	3.46e+03	1.6e+03
27	13C-2,3,7,8-TCDD	4.97e+06	5.04e+03	9.9e+02	6.29e+06	1.67e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.33e+06	1.40e+03	5.3e+03	4.71e+06	8.16e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	6.37e+06	1.36e+03	4.7e+03	5.05e+06	1.49e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.90e+06	1.36e+03	4.3e+03	4.73e+06	1.49e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.72e+06	1.49e+03	3.2e+03	4.52e+06	7.08e+02	6.4e+03
32	13C-OCDD	6.11e+06	6.76e+02	9.0e+03	6.60e+06	1.12e+03	5.9e+03
33	13C-1,2,3,4-TCDD	5.02e+06	5.04e+03	1.0e+03	6.31e+06	1.67e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.49e+06	1.36e+03	4.8e+03	5.09e+06	1.49e+03	3.4e+03
35	37Cl-2,3,7,8-TCDD	2.83e+04	1.46e+03	1.9e+01			

File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

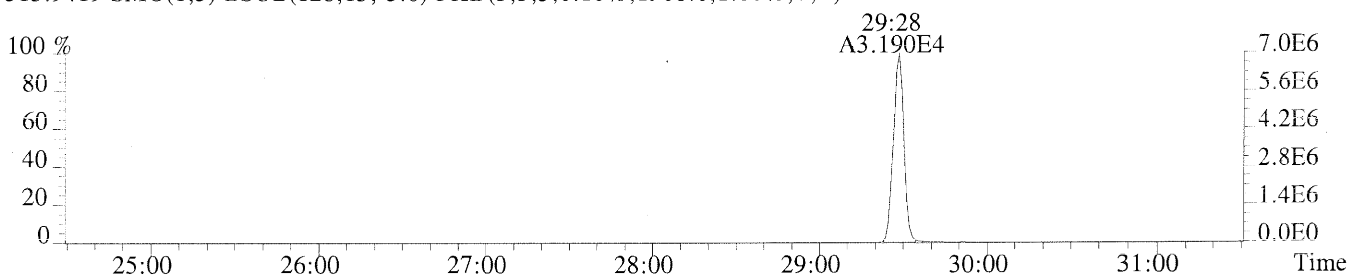
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



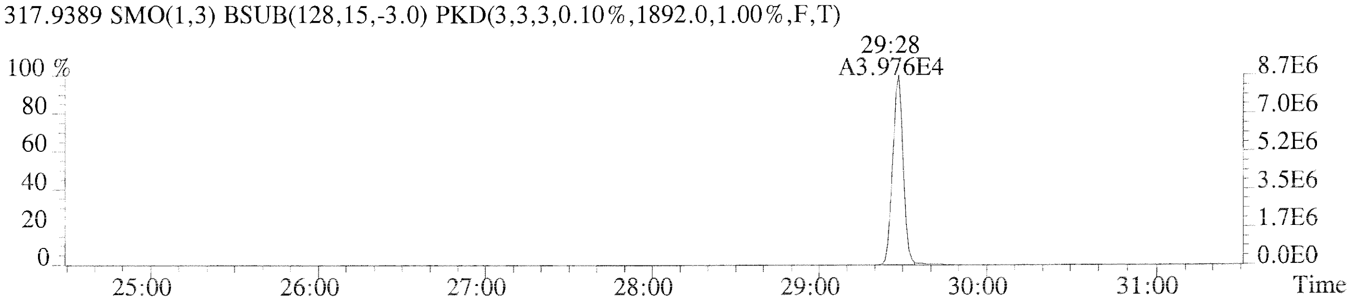
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



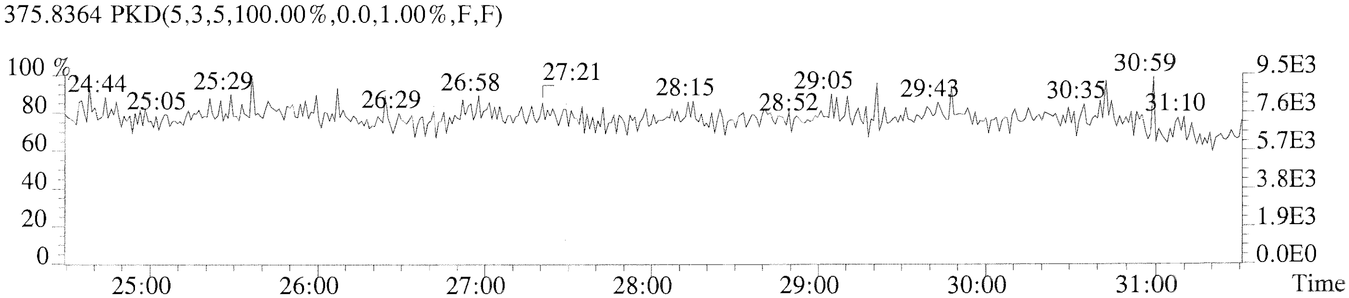
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



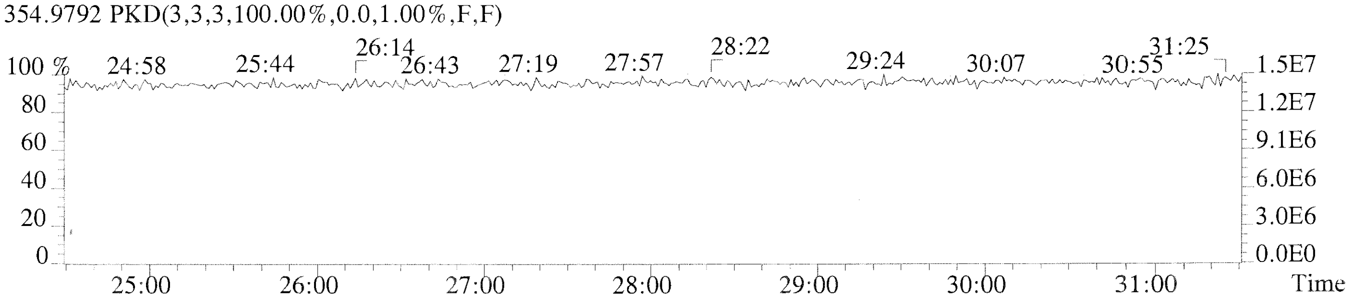
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



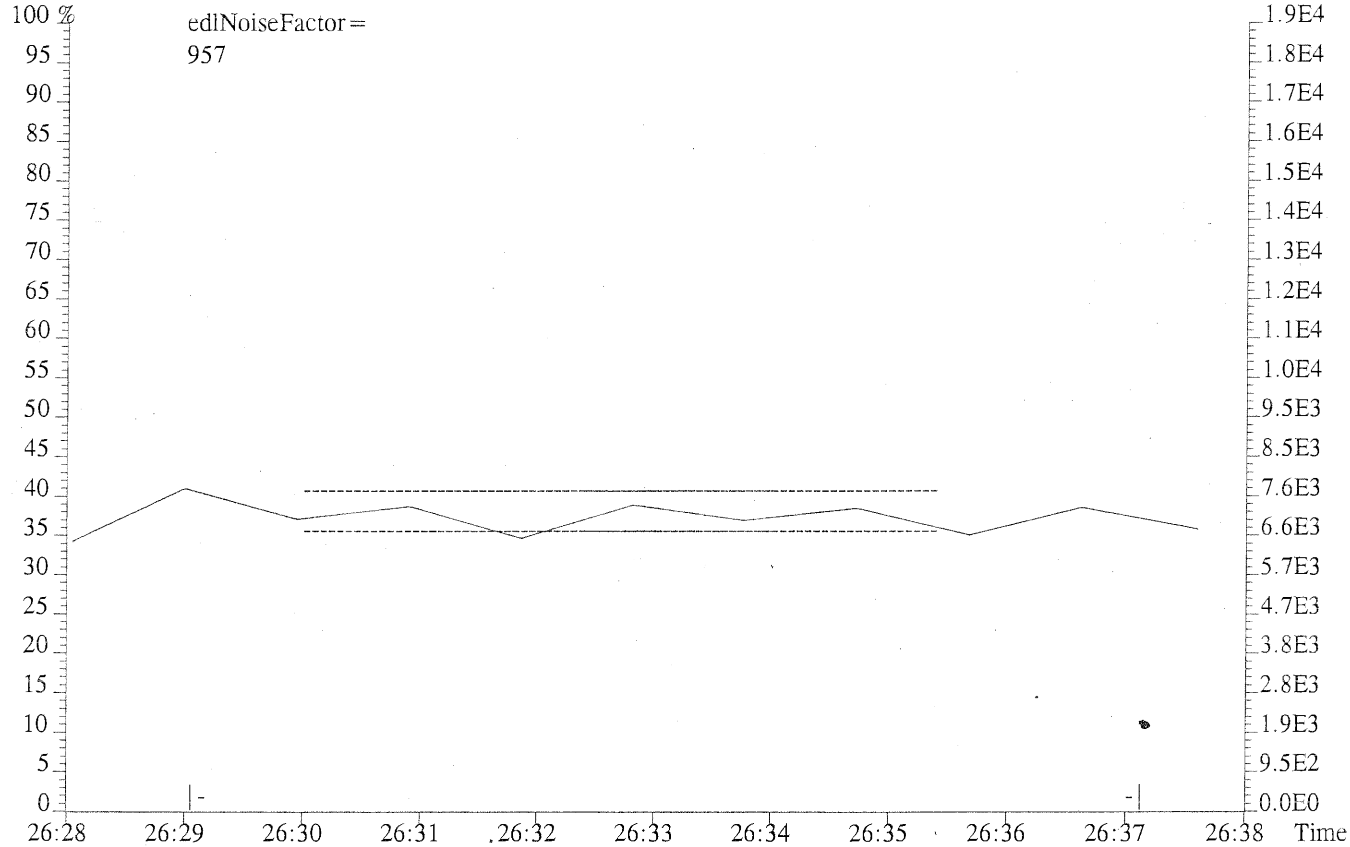
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



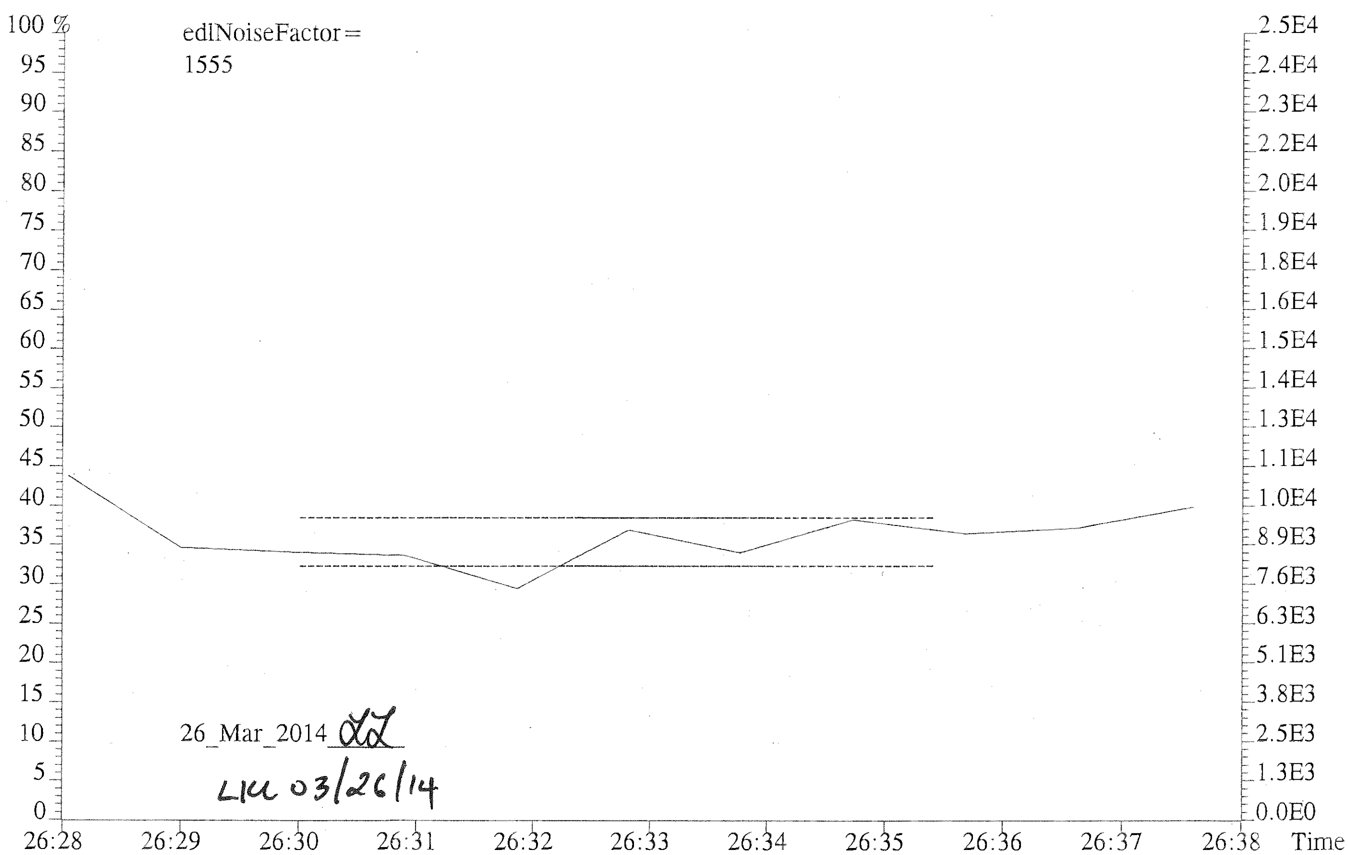
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
303.9016

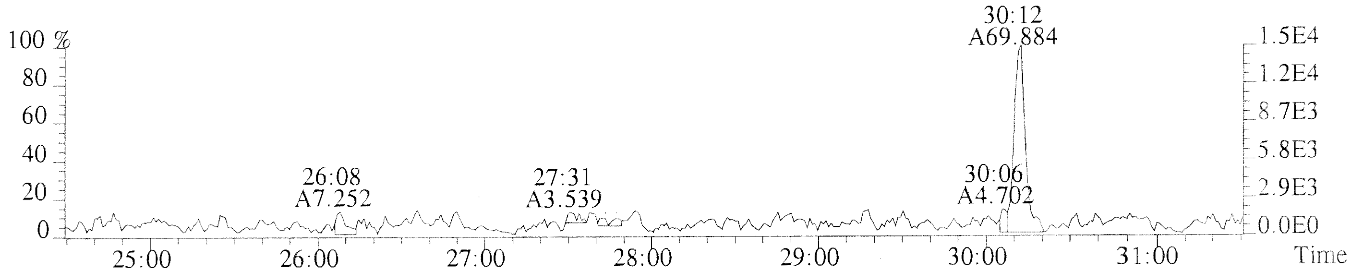


305.8987

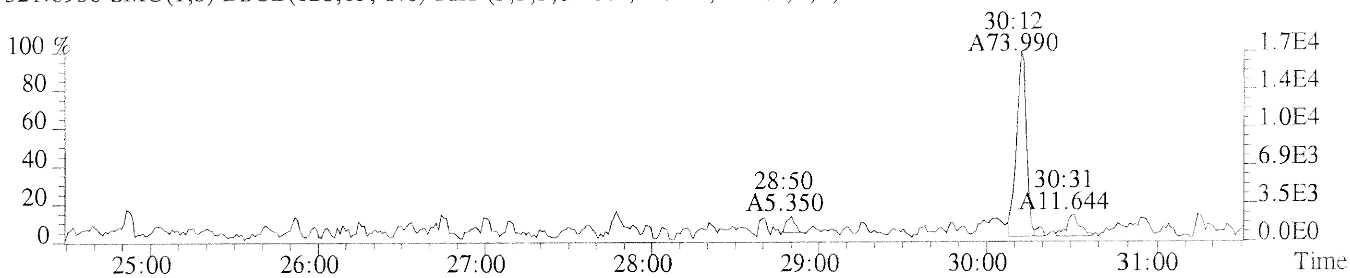


File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

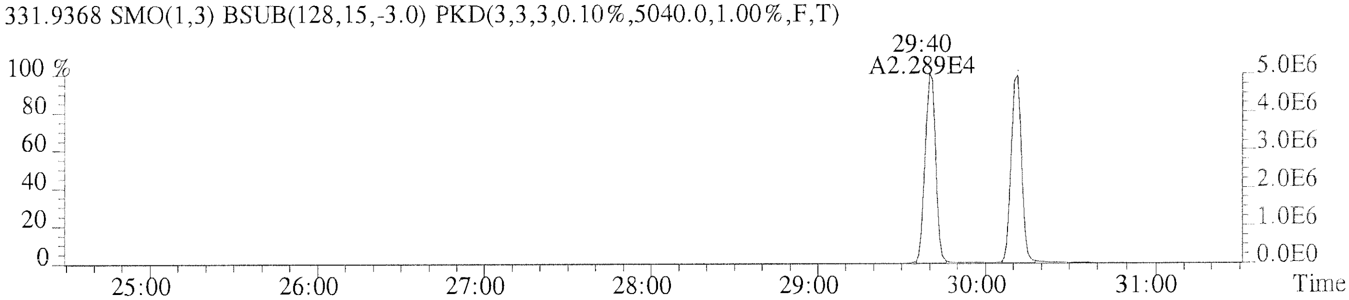
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



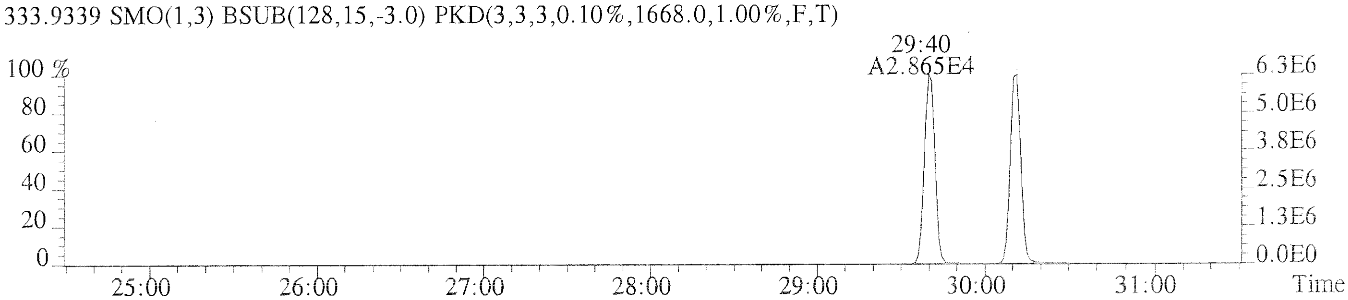
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



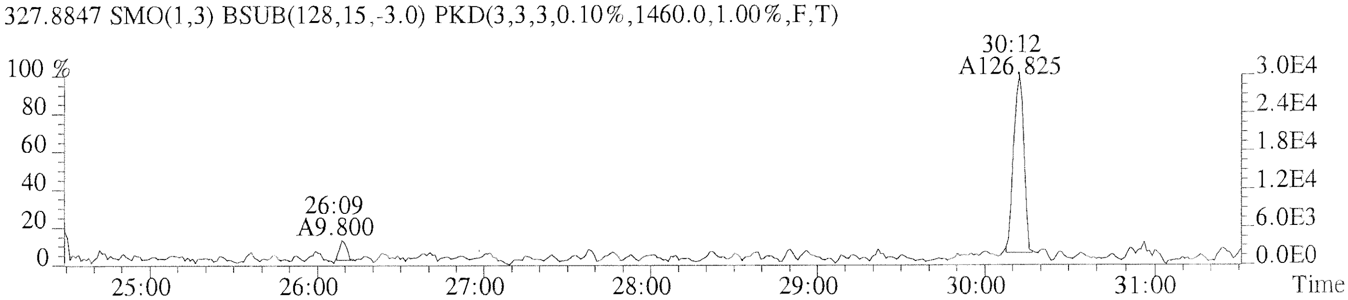
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5040.0,1.00%,F,T)



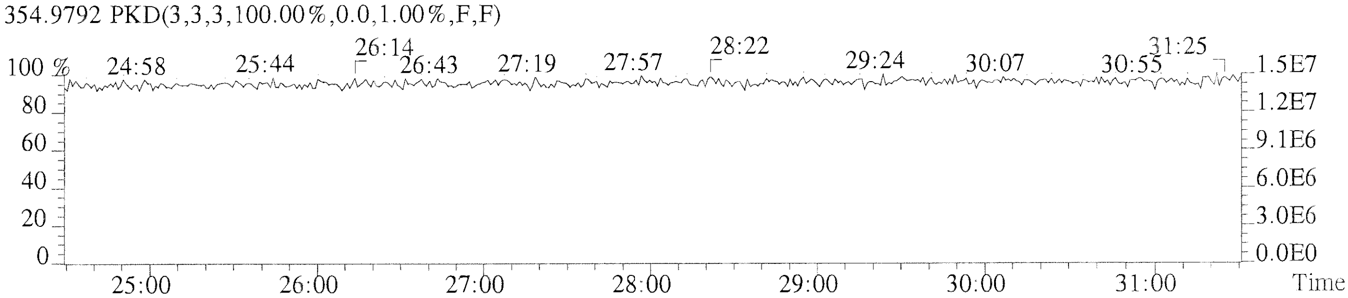
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



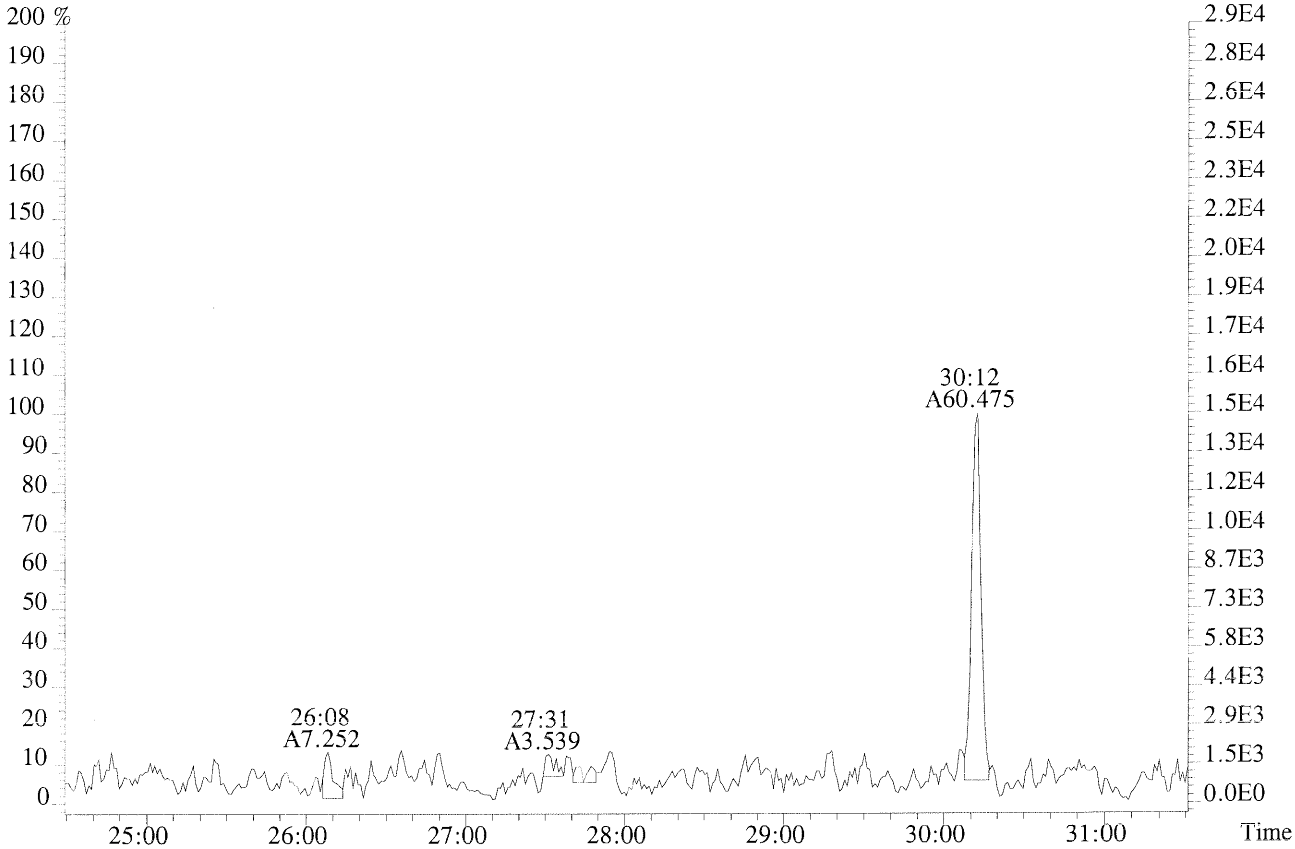
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



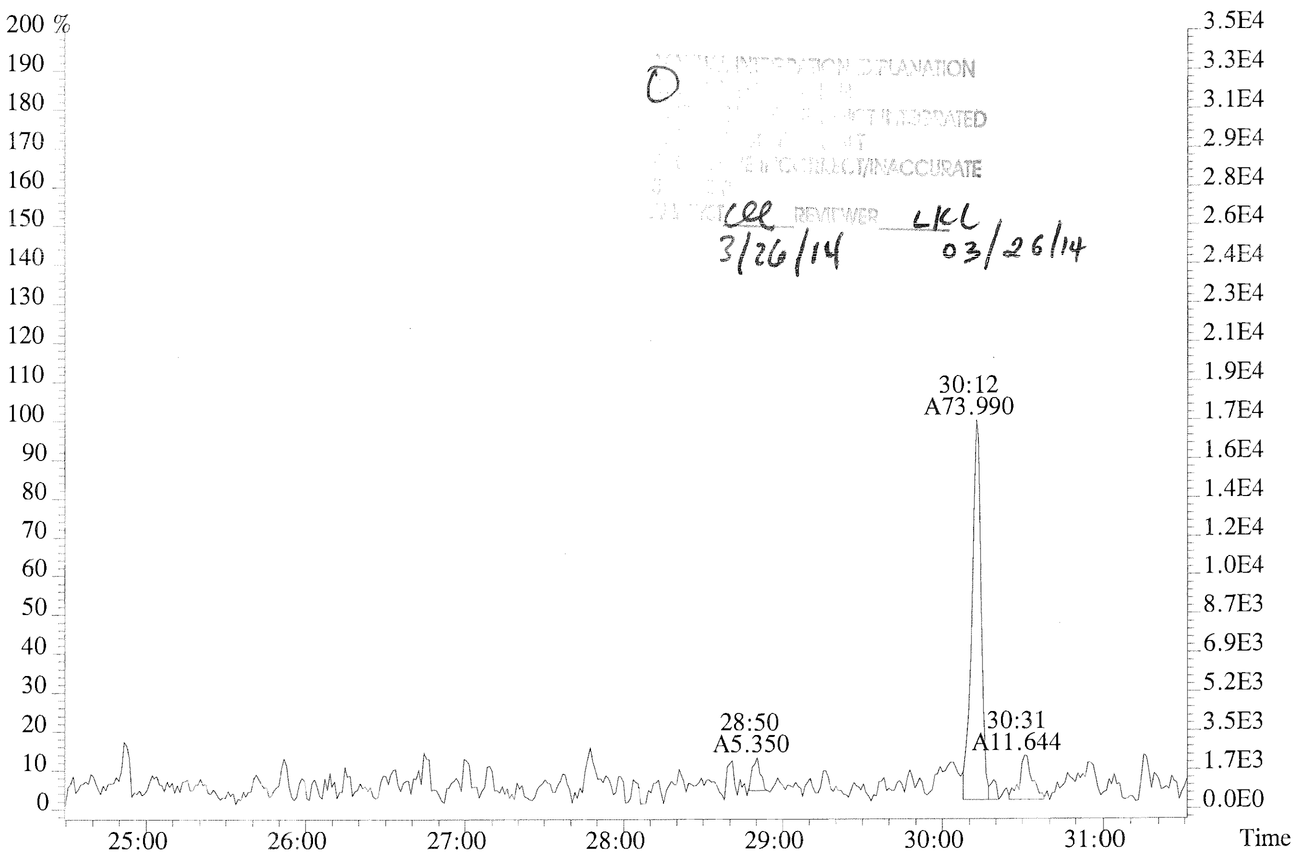
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



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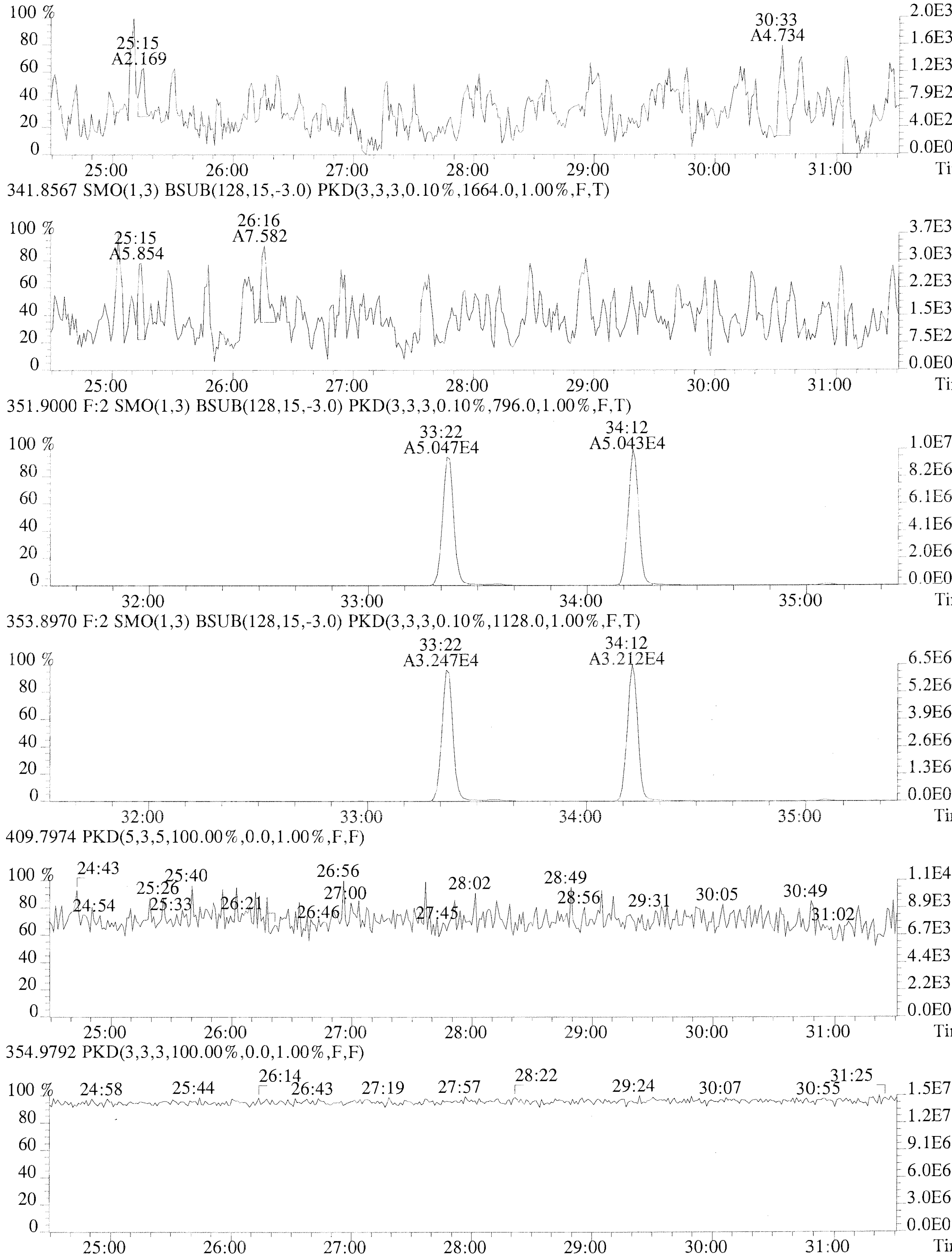
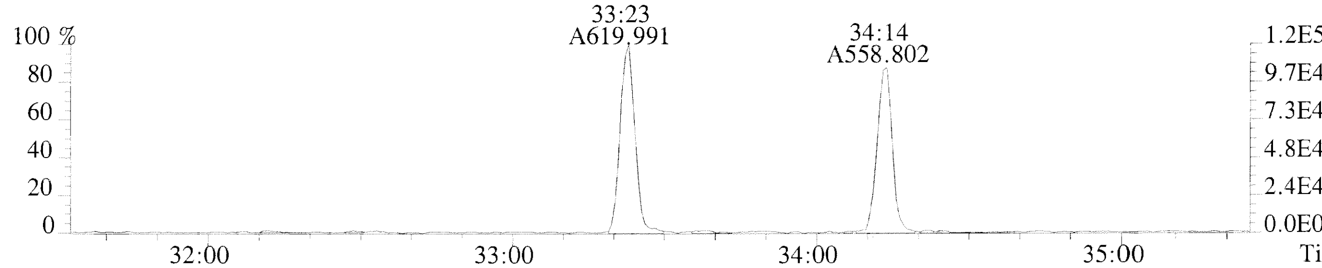
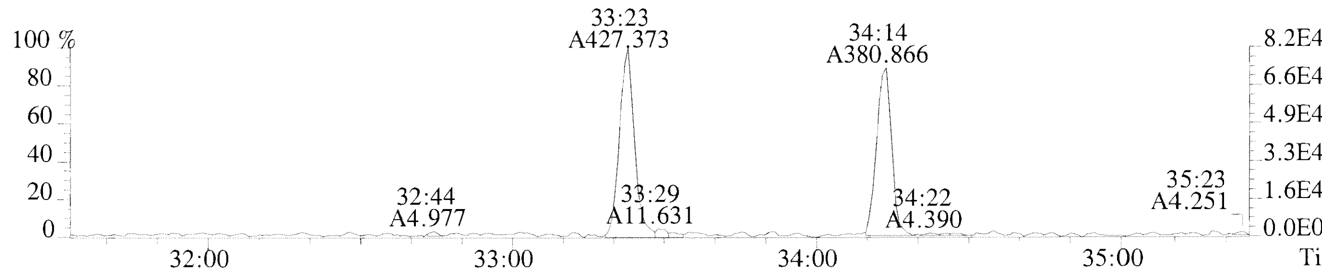
File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



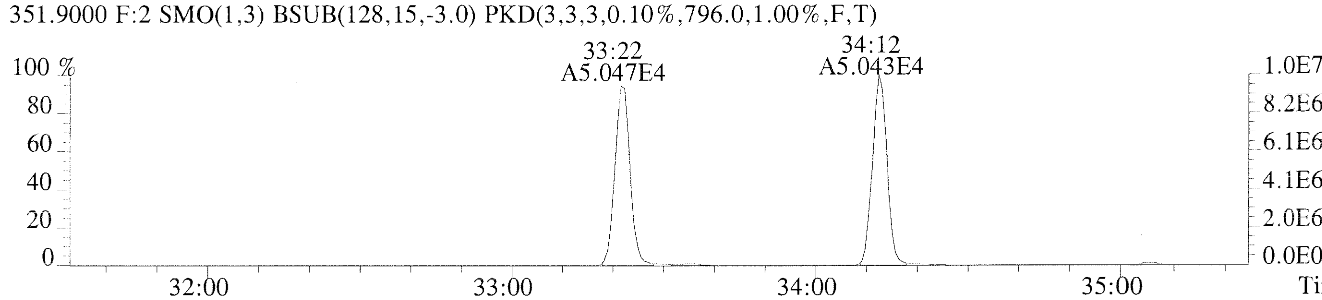
File:P169970 #1-351 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



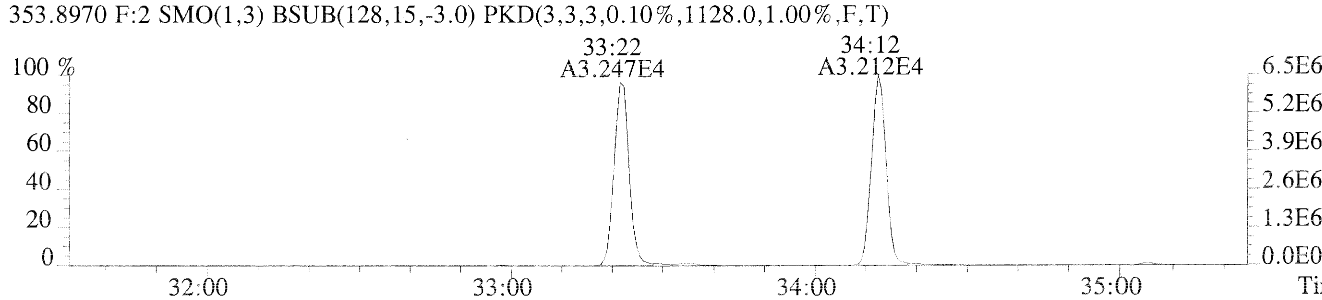
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



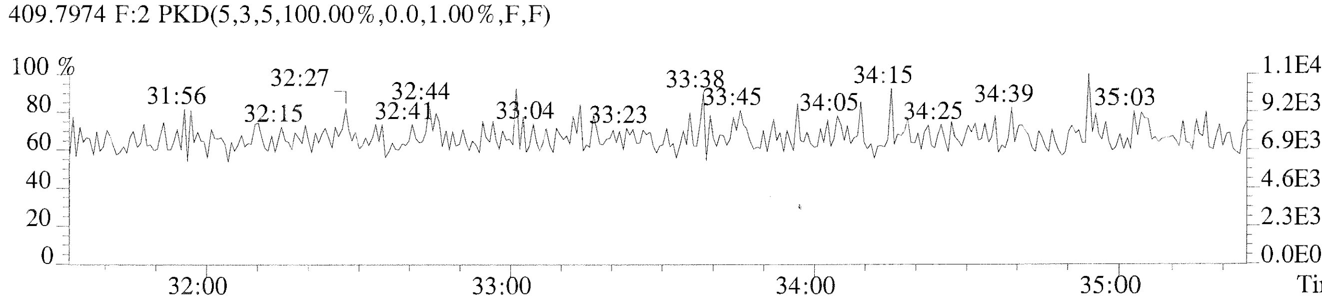
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



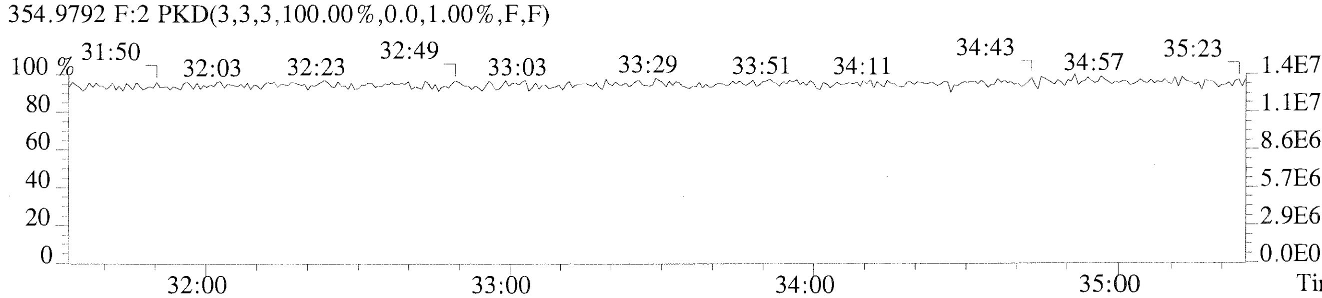
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



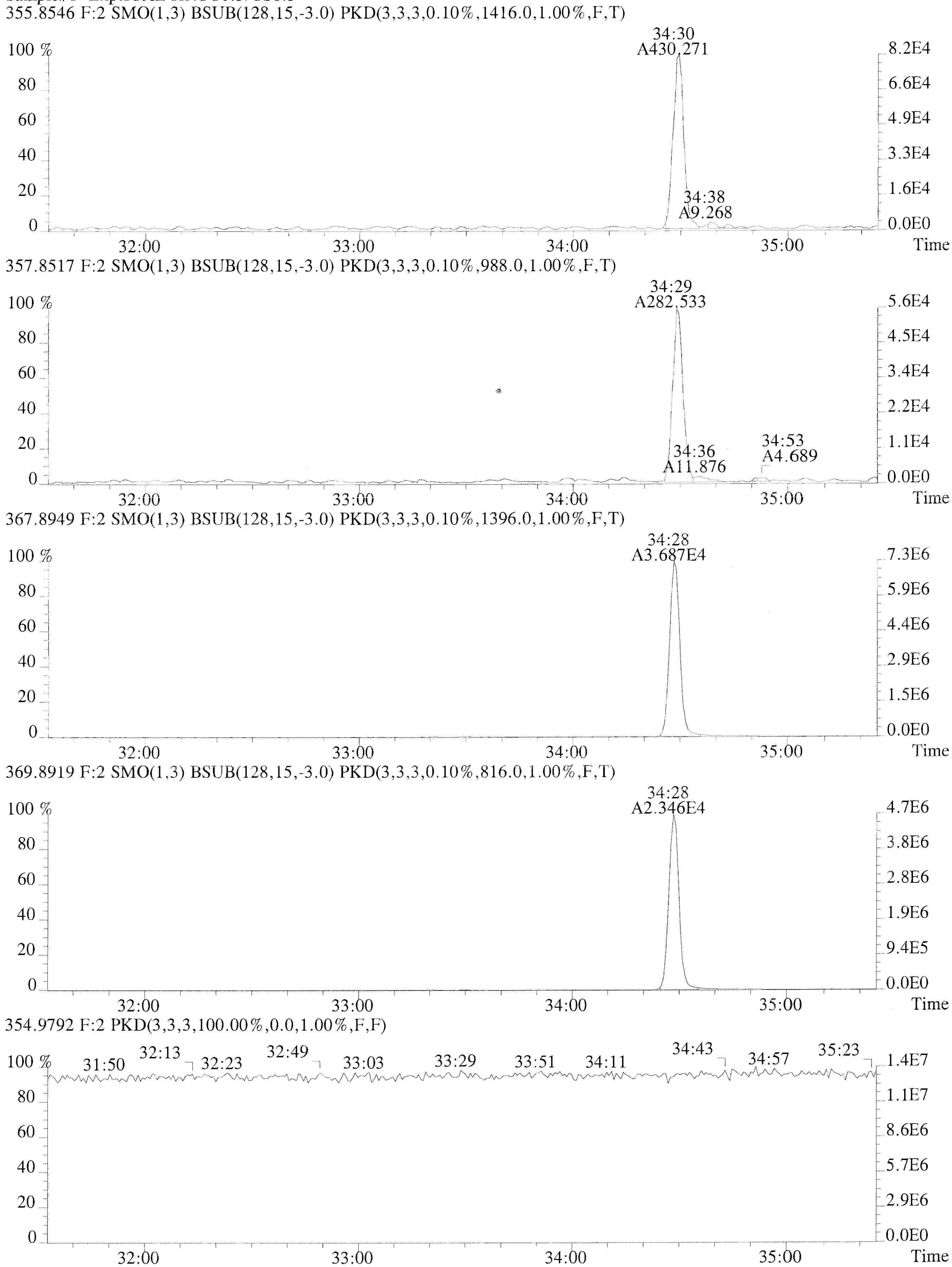
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



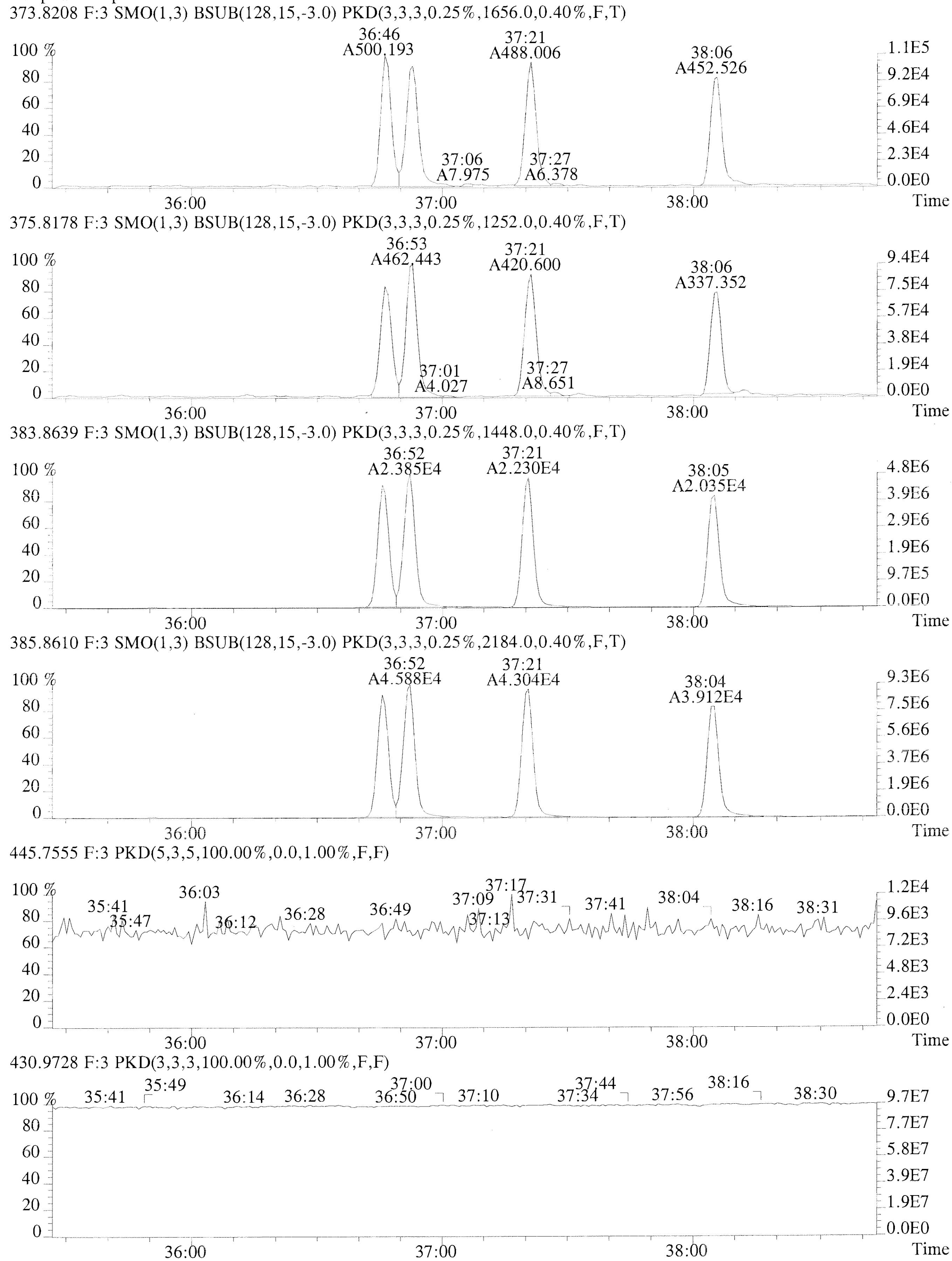
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169970 #1-351 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

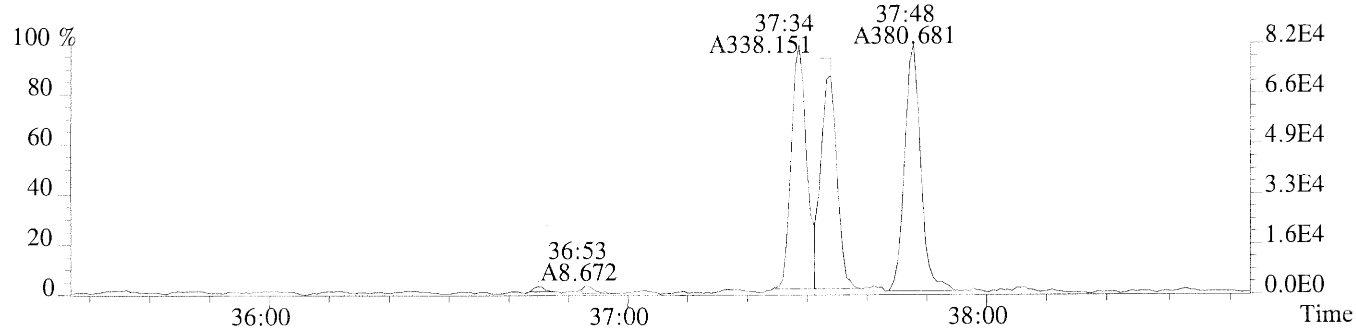


File:P169970 #1-298 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

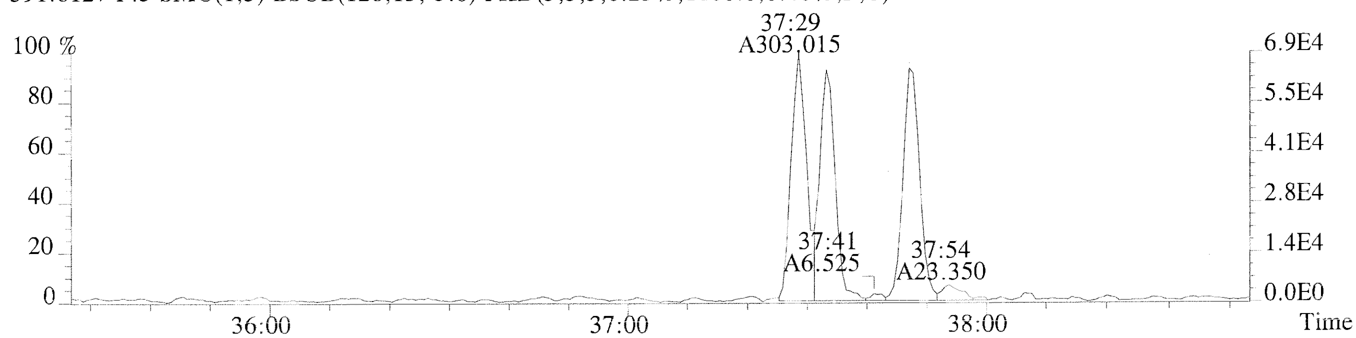


File:P169970 #1-298 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

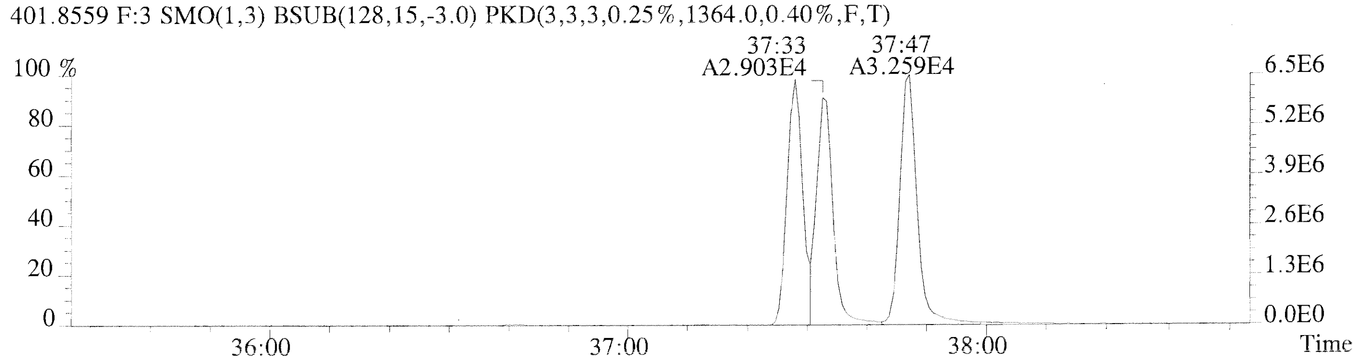
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



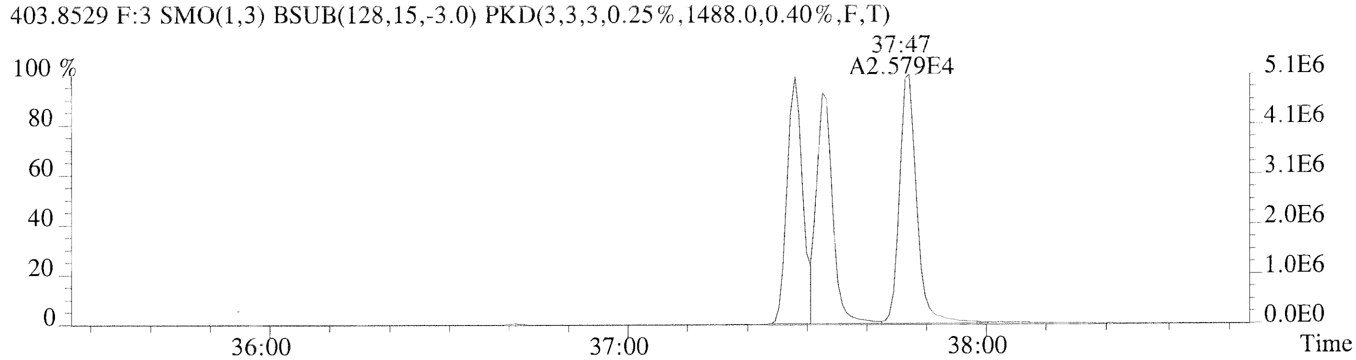
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



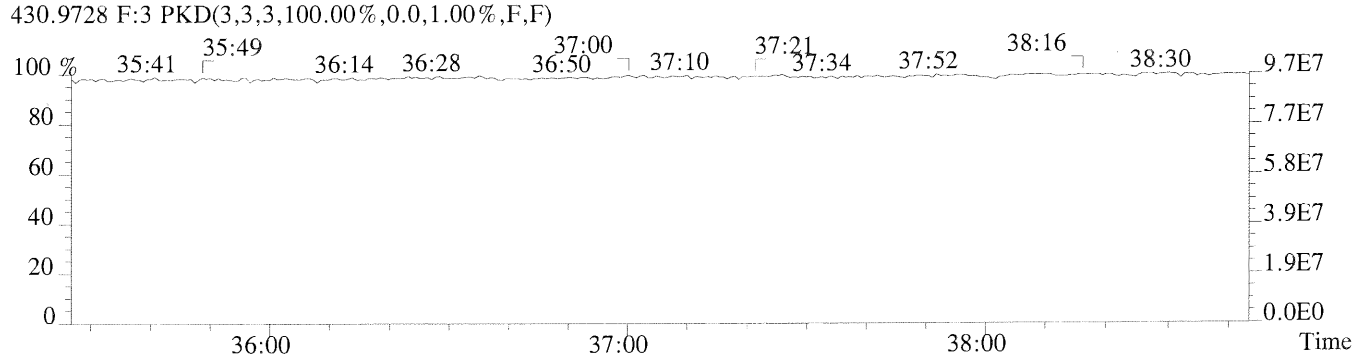
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)

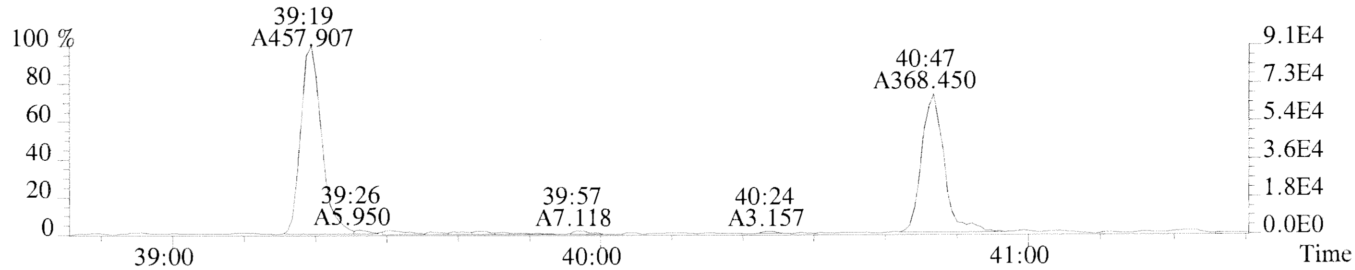


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

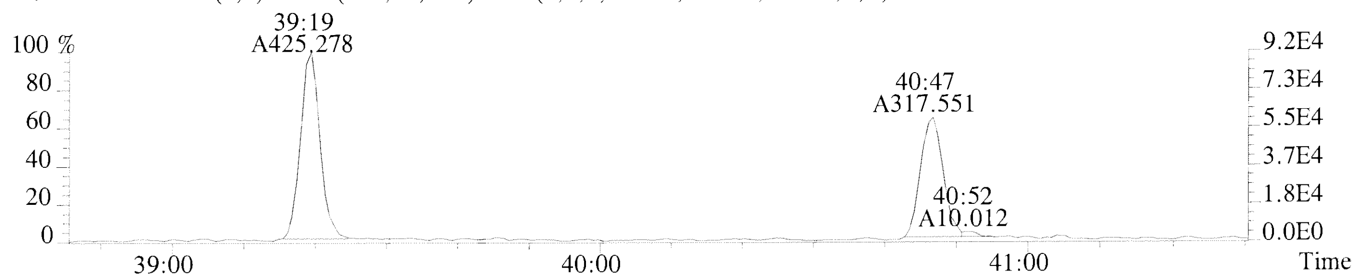


File:P169970 #1-250 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

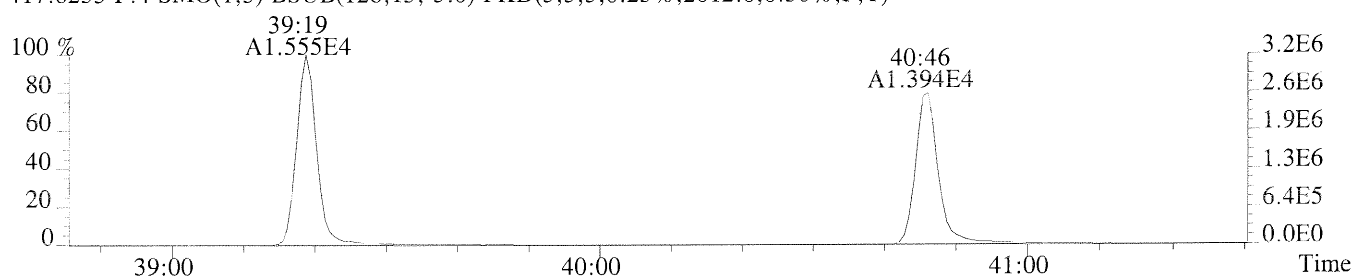
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.50%,F,T)



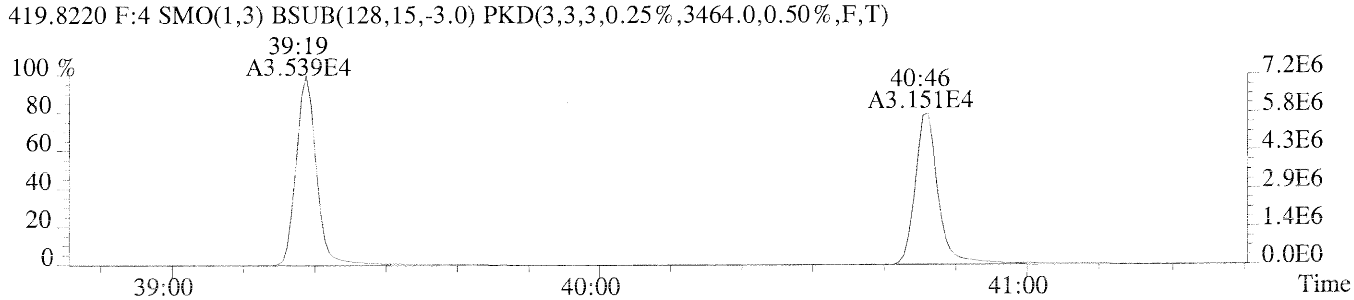
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.50%,F,T)



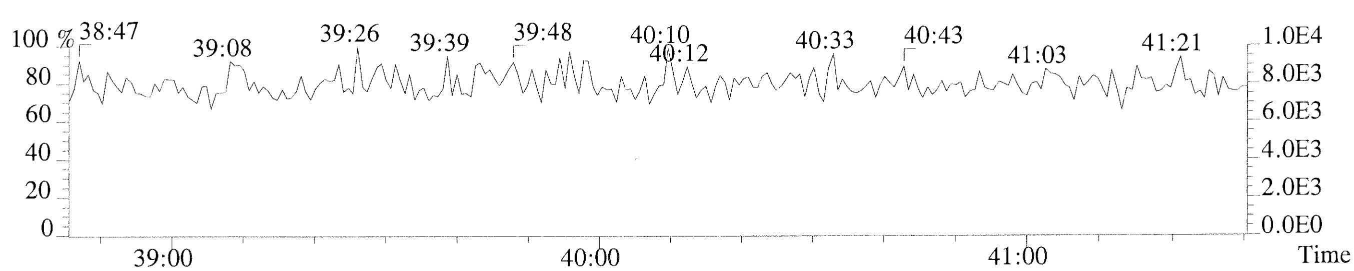
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



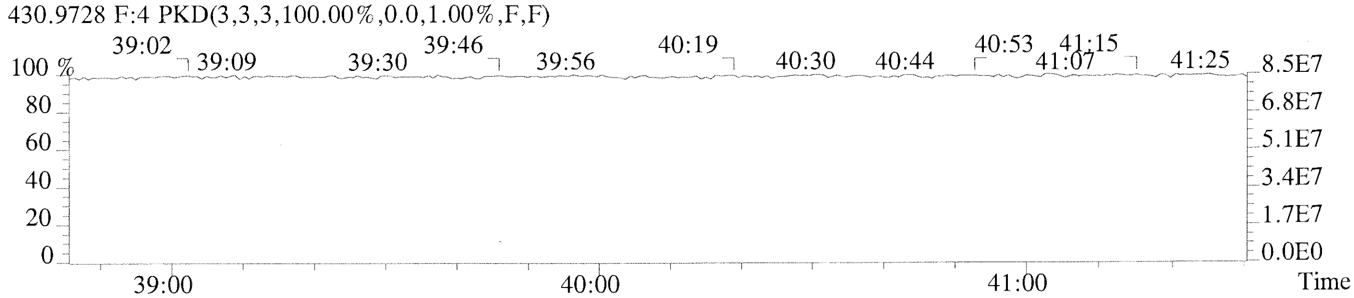
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3464.0,0.50%,F,T)



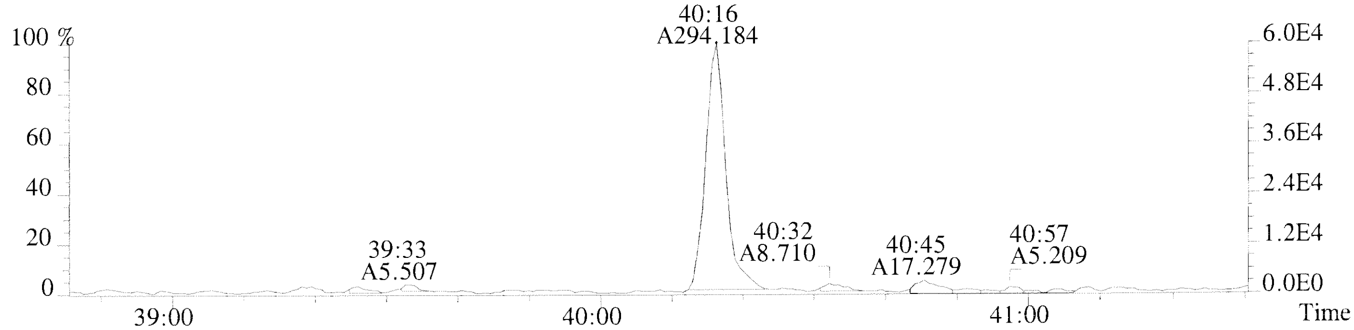
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



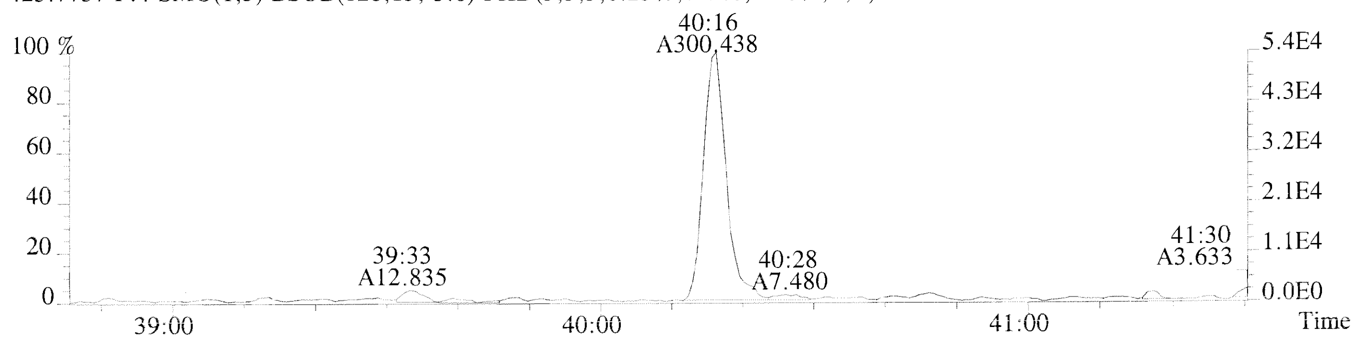
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



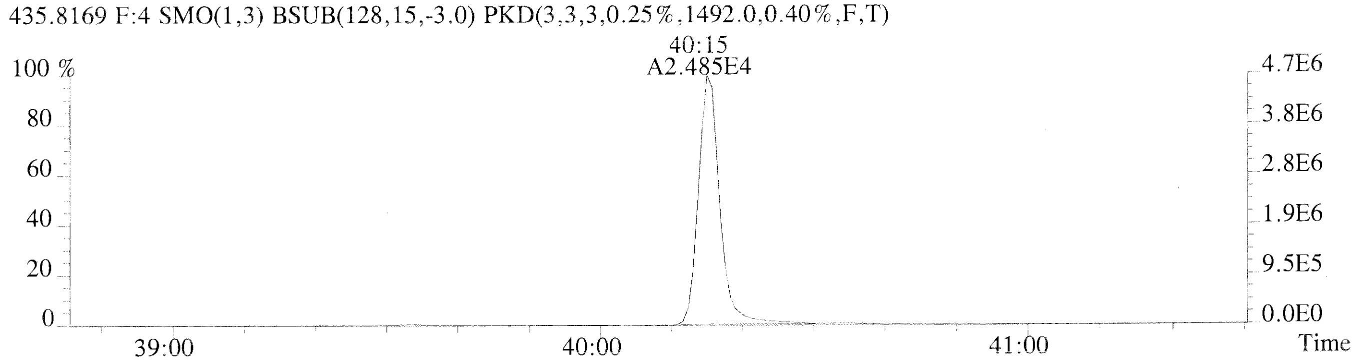
File:P169970 #1-250 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



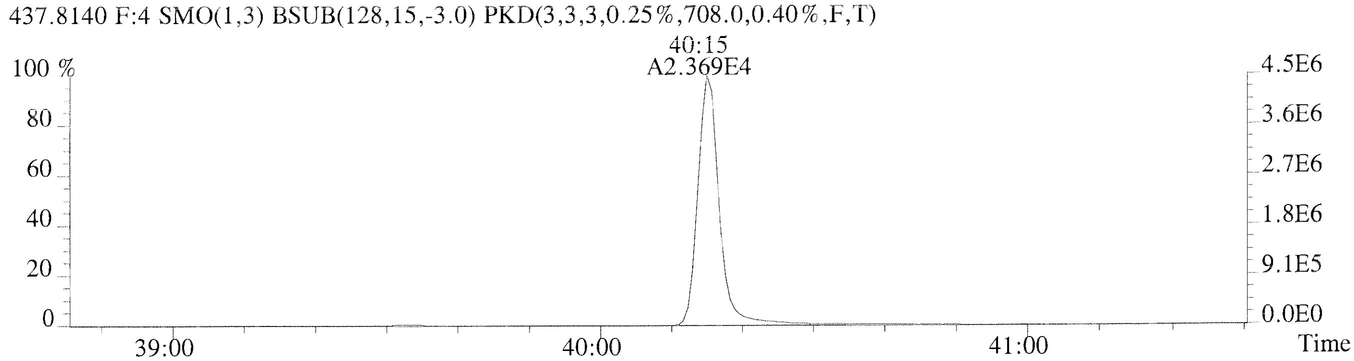
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



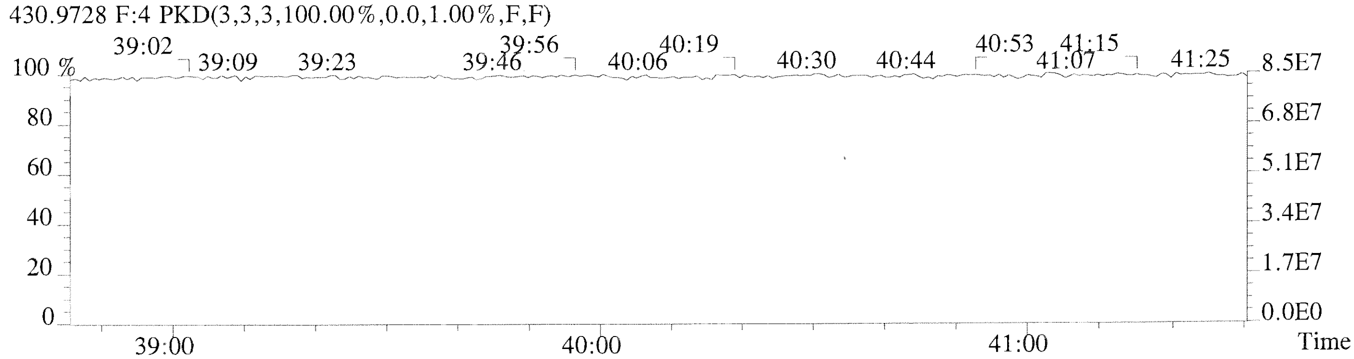
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.40%,F,T)



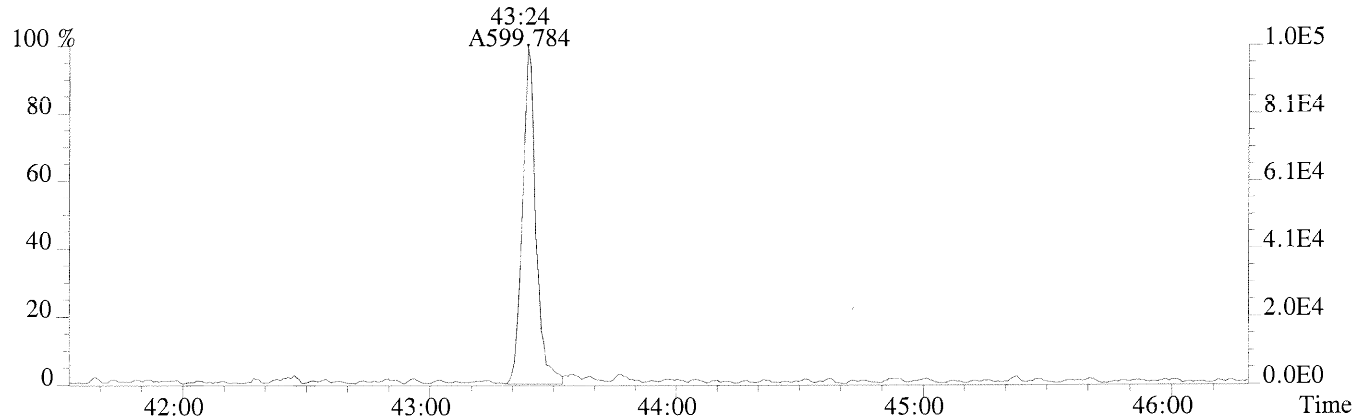
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



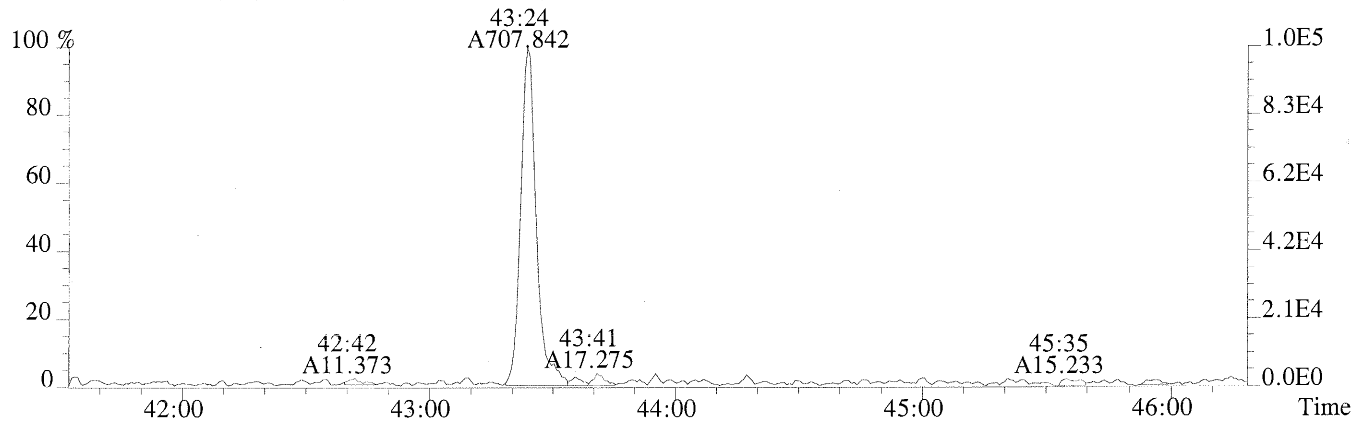
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



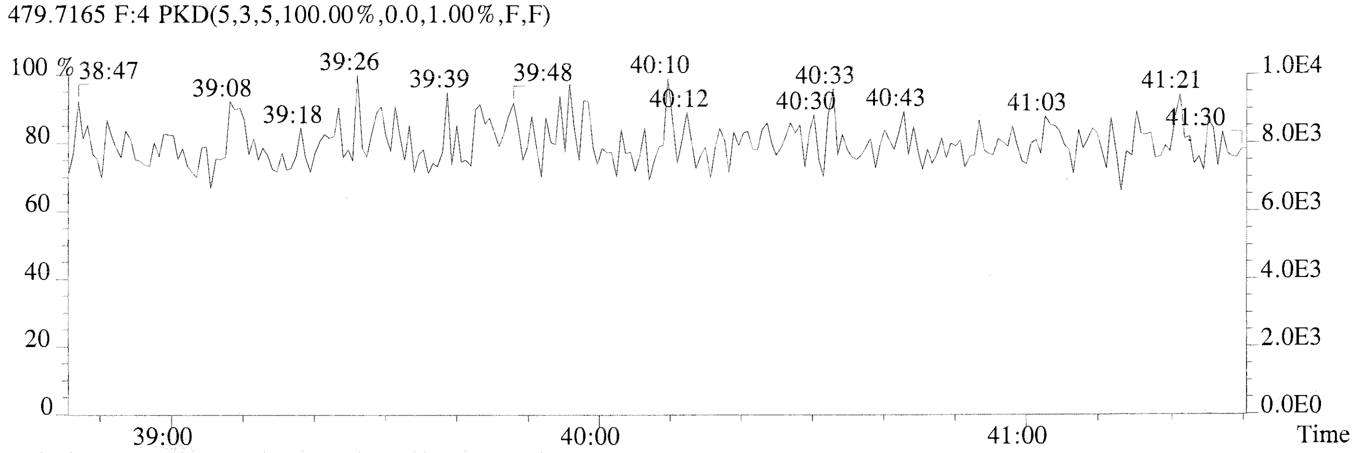
File:P169970 #1-438 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



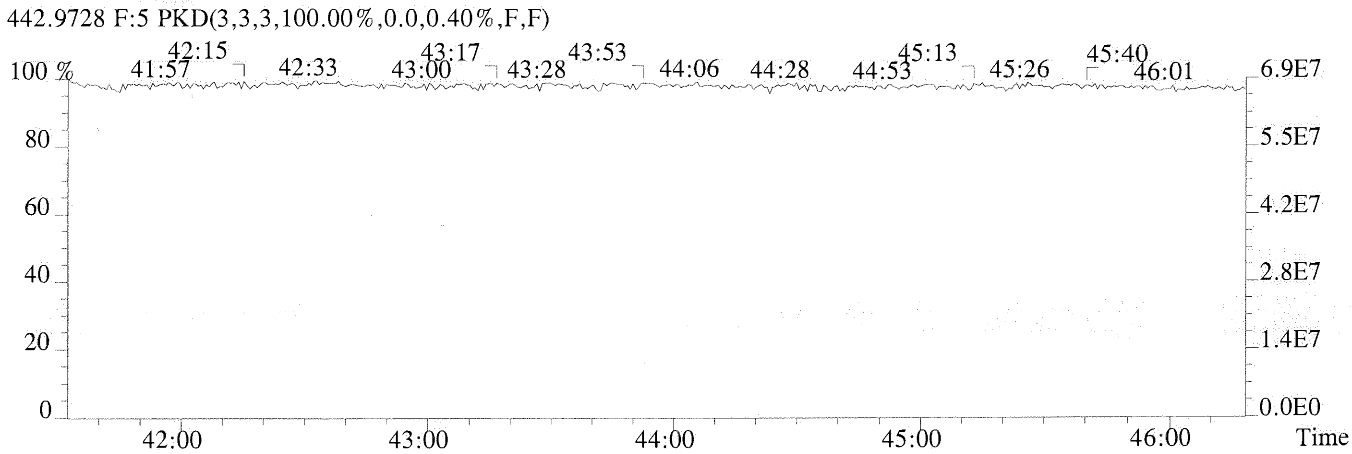
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1516.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

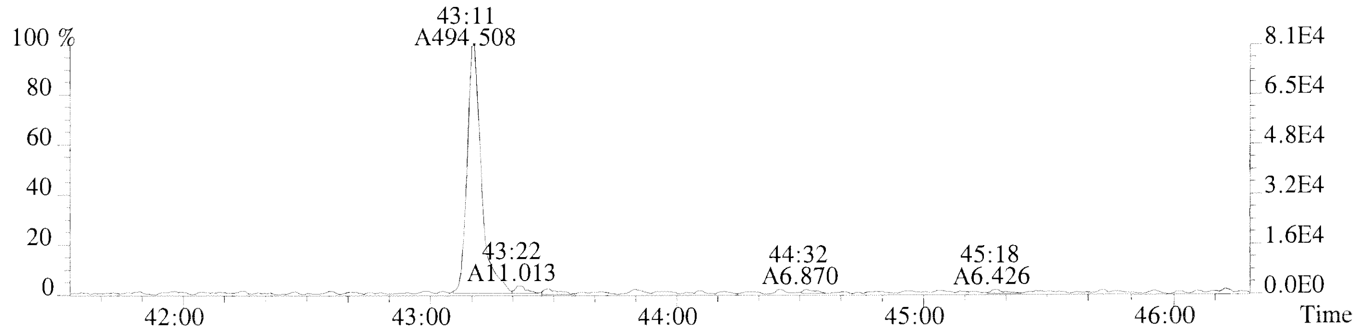


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

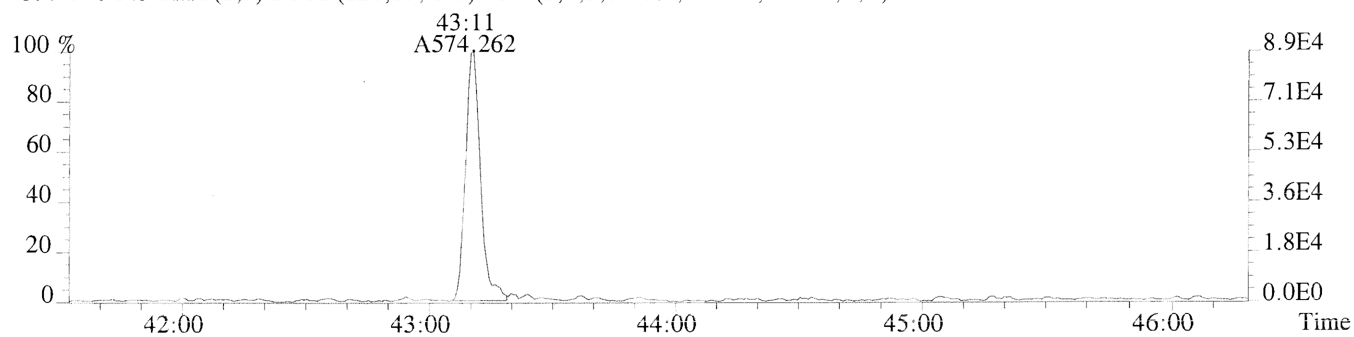


File:P169970 #1-438 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

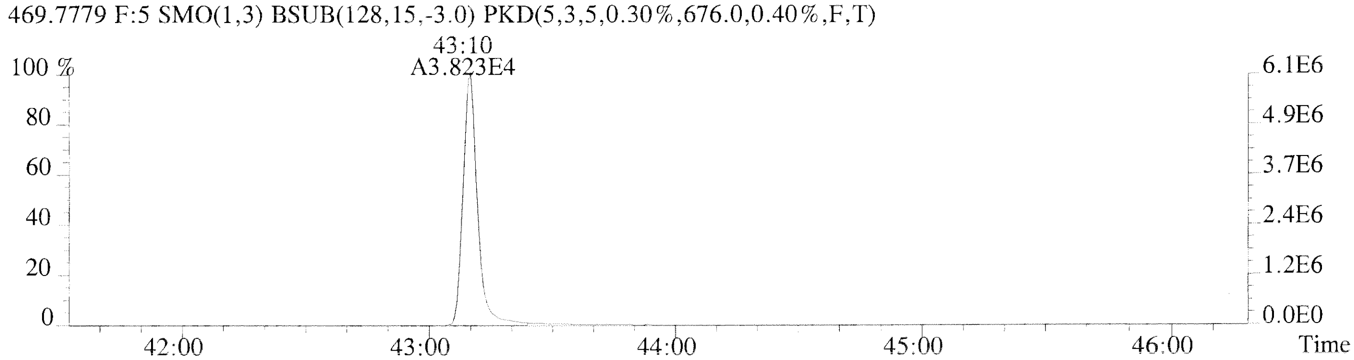
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



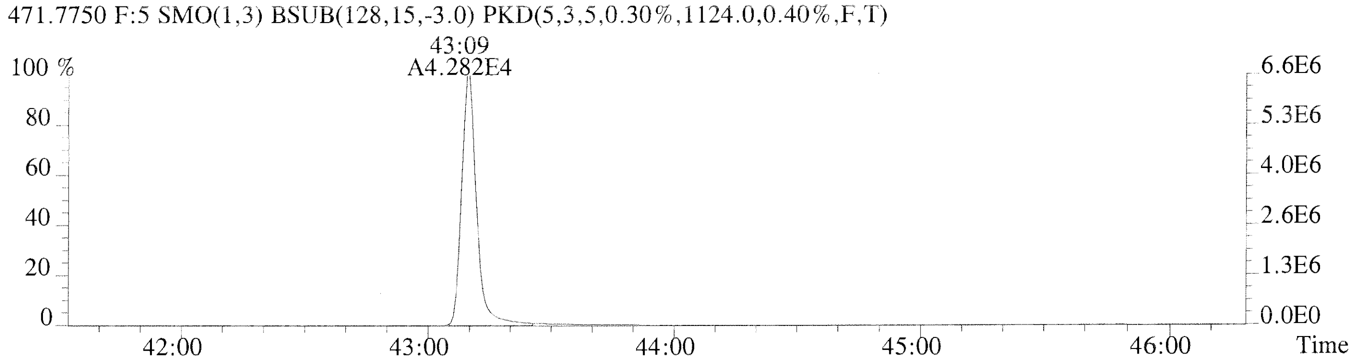
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



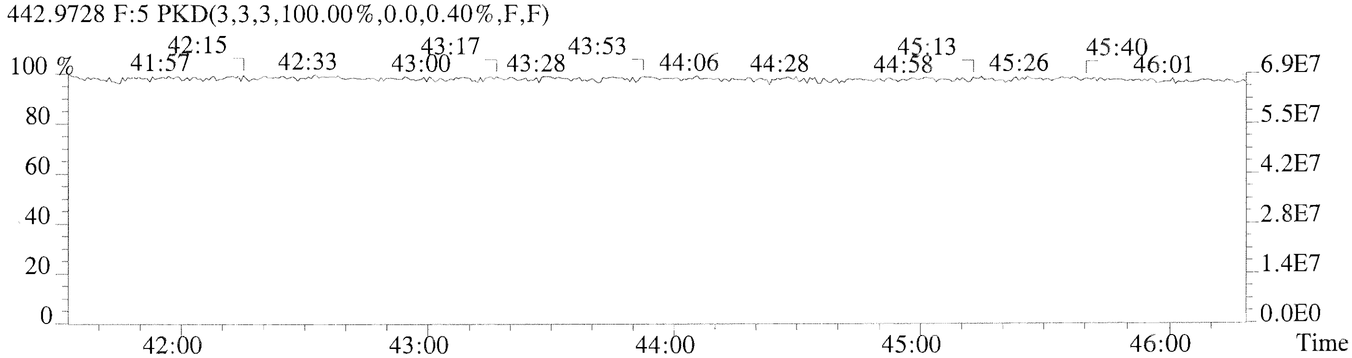
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66798

Run #2 Filename P169971 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:10:10
Processed: 26-MAR-14 10:00:48 Sample ID: ICAL HRCC1/CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.825e+02	2.294e+02	0.80	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	1.484e+03	9.711e+02	1.53	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	1.454e+03	8.707e+02	1.67	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	1.263e+03	9.849e+02	1.28	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	1.289e+03	1.113e+03	1.16	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.244e+03	9.781e+02	1.27	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.126e+03	9.103e+02	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	1.118e+03	1.025e+03	1.09	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	9.244e+02	9.085e+02	1.02	yes	no	1.324
10	Unk	OCDF	43:24	1.489e+03	1.685e+03	0.88	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	1.289e+02	1.615e+02	0.80	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	9.193e+02	6.461e+02	1.42	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:28	8.870e+02	6.322e+02	1.40	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	8.767e+02	7.018e+02	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	9.630e+02	7.762e+02	1.24	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	7.927e+02	6.981e+02	1.14	yes	no	1.016
17	Unk	OCDD	43:10	1.362e+03	1.444e+03	0.94	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.634e+04	4.618e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	5.929e+04	3.768e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	5.857e+04	3.706e+04	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.398e+04	4.685e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.834e+04	5.372e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.607e+04	4.999e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.409e+04	4.594e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:18	1.857e+04	4.219e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.669e+04	3.841e+04	0.43	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.425e+04	3.162e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	4.209e+04	2.680e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:27	3.323e+04	2.614e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	3.503e+04	2.746e+04	1.28	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	2.952e+04	2.817e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	4.618e+04	5.200e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.612e+04	3.298e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.818e+04	3.034e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	3.240e+02				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66798

Run #2 Filename P169971 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:10:10
Processed: 26-MAR-14 08:19:501 LAB. ID: ICAL HRCC1/CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.05e+04	9.84e+02	4.1e+01	4.87e+04	2.56e+03	1.9e+01
2	1,2,3,7,8-PeCDF	2.92e+05	8.60e+02	3.4e+02	1.92e+05	1.26e+03	1.5e+02
3	2,3,4,7,8-PeCDF	2.94e+05	8.60e+02	3.4e+02	1.77e+05	1.26e+03	1.4e+02
4	1,2,3,4,7,8-HxCDF	2.66e+05	1.16e+03	2.3e+02	2.07e+05	7.68e+02	2.7e+02
5	1,2,3,6,7,8-HxCDF	2.72e+05	1.16e+03	2.4e+02	2.24e+05	7.68e+02	2.9e+02
6	2,3,4,6,7,8-HxCDF	2.77e+05	1.16e+03	2.4e+02	2.16e+05	7.68e+02	2.8e+02
7	1,2,3,7,8,9-HxCDF	2.38e+05	1.16e+03	2.1e+02	1.90e+05	7.68e+02	2.5e+02
8	1,2,3,4,6,7,8-HpCDF	2.37e+05	8.32e+02	2.9e+02	2.11e+05	8.16e+02	2.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.72e+05	8.32e+02	2.1e+02	1.70e+05	8.16e+02	2.1e+02
10	OCDF	2.38e+05	1.24e+03	1.9e+02	2.77e+05	1.90e+03	1.5e+02
11	2,3,7,8-TCDD	3.20e+04	1.28e+03	2.5e+01	3.66e+04	1.50e+03	2.4e+01
12	1,2,3,7,8-PeCDD	1.96e+05	1.47e+03	1.3e+02	1.31e+05	7.76e+02	1.7e+02
13	1,2,3,4,7,8-HxCDD	1.89e+05	6.40e+02	3.0e+02	1.41e+05	1.12e+03	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.84e+05	6.40e+02	2.9e+02	1.45e+05	1.12e+03	1.3e+02
15	1,2,3,7,8,9-HxCDD	2.02e+05	6.40e+02	3.2e+02	1.65e+05	1.12e+03	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.64e+05	1.02e+03	1.6e+02	1.41e+05	8.28e+02	1.7e+02
17	OCDD	2.16e+05	6.80e+02	3.2e+02	2.35e+05	7.12e+02	3.3e+02
18	13C-2,3,7,8-TCDF	8.01e+06	1.09e+03	7.3e+03	1.02e+07	1.95e+03	5.2e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	9.76e+02	1.2e+04	7.25e+06	9.68e+02	7.5e+03
20	13C-2,3,4,7,8-PeCDF	1.19e+07	9.76e+02	1.2e+04	7.41e+06	9.68e+02	7.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.24e+06	8.24e+02	6.4e+03	1.01e+07	1.60e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	5.94e+06	8.24e+02	7.2e+03	1.12e+07	1.60e+03	7.0e+03
23	13C-2,3,4,6,7,8-HxCDF	5.71e+06	8.24e+02	6.9e+03	1.10e+07	1.60e+03	6.9e+03
24	13C-1,2,3,7,8,9-HxCDF	5.05e+06	8.24e+02	6.1e+03	9.55e+06	1.60e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.82e+06	3.04e+03	1.3e+03	8.67e+06	5.60e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.17e+06	3.04e+03	1.0e+03	7.29e+06	5.60e+03	1.3e+03
27	13C-2,3,7,8-TCDD	5.59e+06	4.31e+03	1.3e+03	7.28e+06	1.98e+03	3.7e+03
28	13C-1,2,3,7,8-PeCDD	8.50e+06	1.25e+03	6.8e+03	5.36e+06	9.44e+02	5.7e+03
29	13C-1,2,3,4,7,8-HxCDD	7.41e+06	1.42e+03	5.2e+03	5.85e+06	1.40e+03	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	7.36e+06	1.42e+03	5.2e+03	5.74e+06	1.40e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.64e+06	1.88e+03	3.0e+03	5.36e+06	1.14e+03	4.7e+03
32	13C-OCDD	7.52e+06	8.92e+02	8.4e+03	8.40e+06	1.00e+03	8.4e+03
33	13C-1,2,3,4-TCDD	6.01e+06	4.31e+03	1.4e+03	7.54e+06	1.98e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.86e+06	1.42e+03	5.5e+03	6.28e+06	1.40e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	7.10e+04	1.99e+03	3.6e+01			

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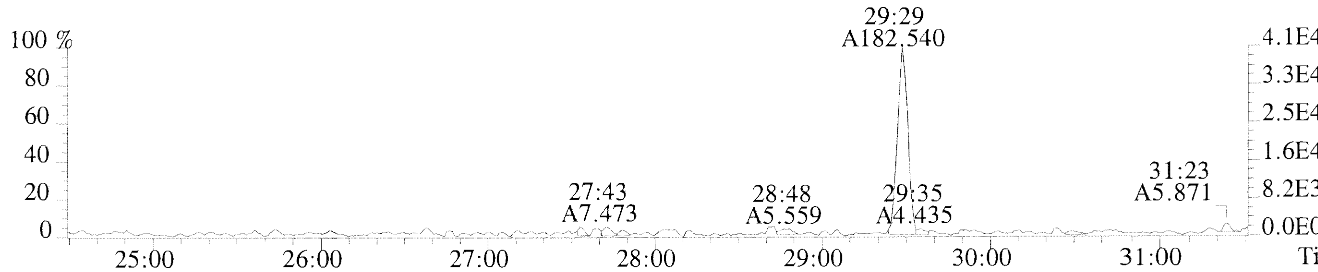
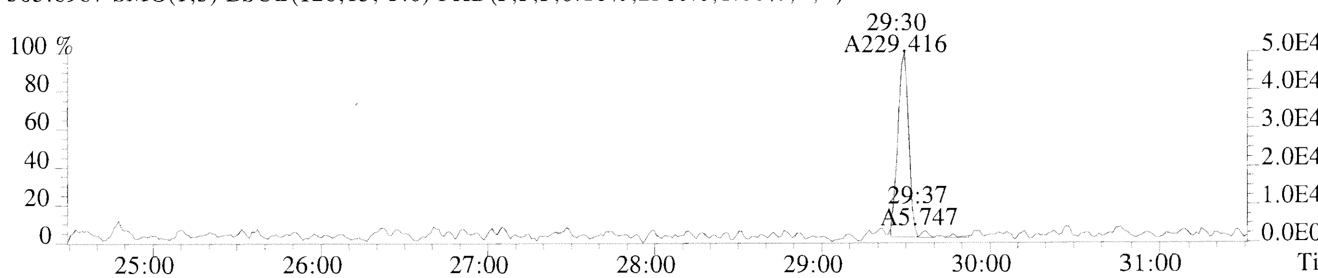
File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

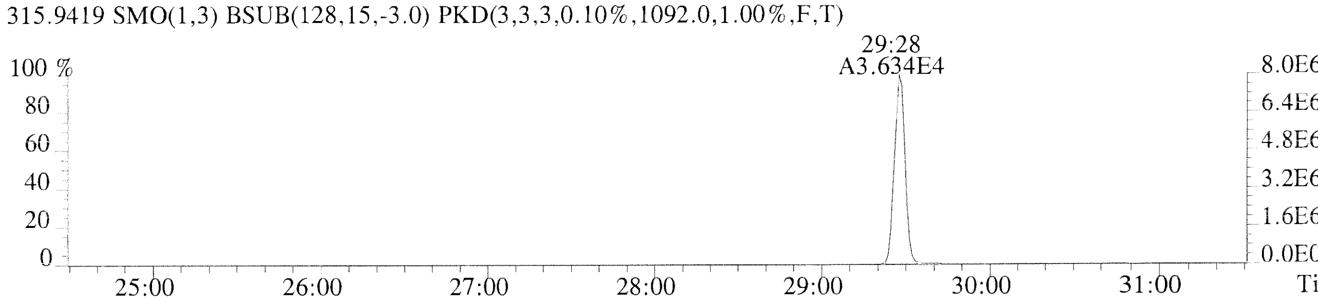
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



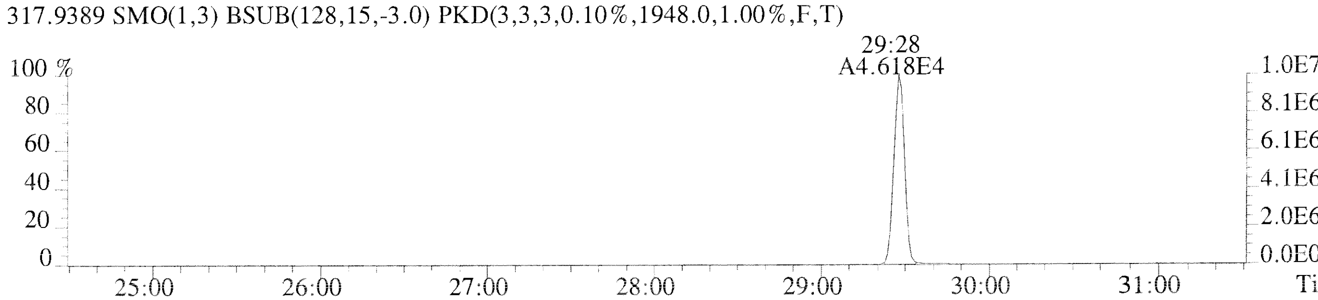
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



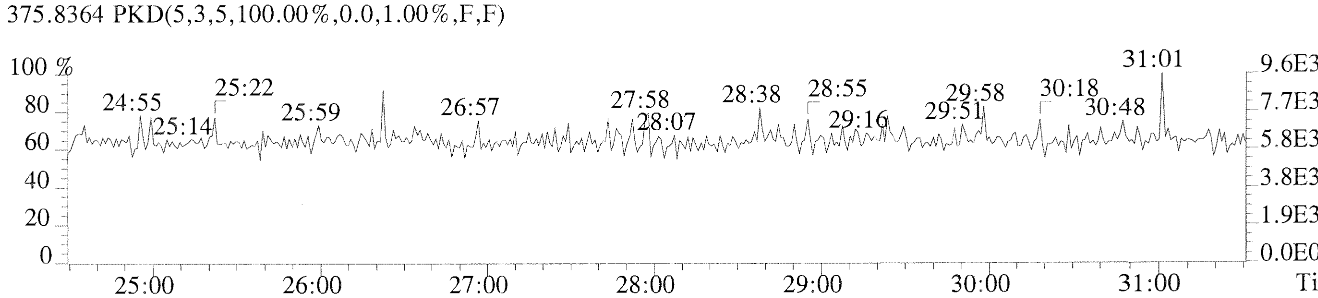
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



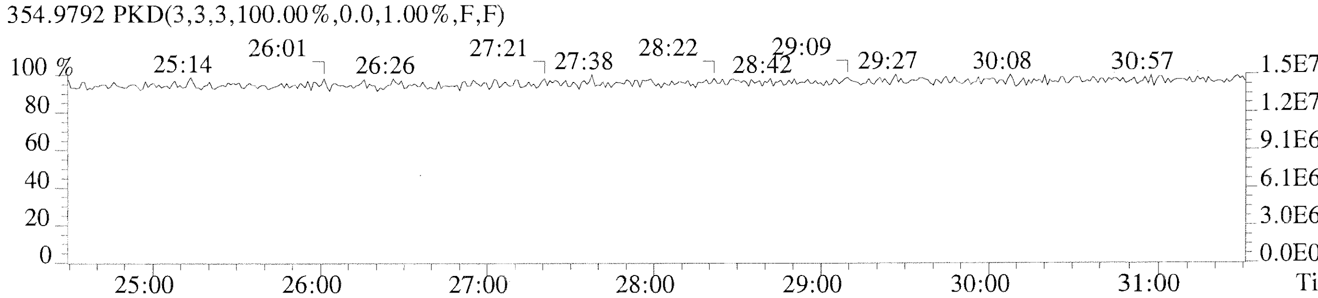
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

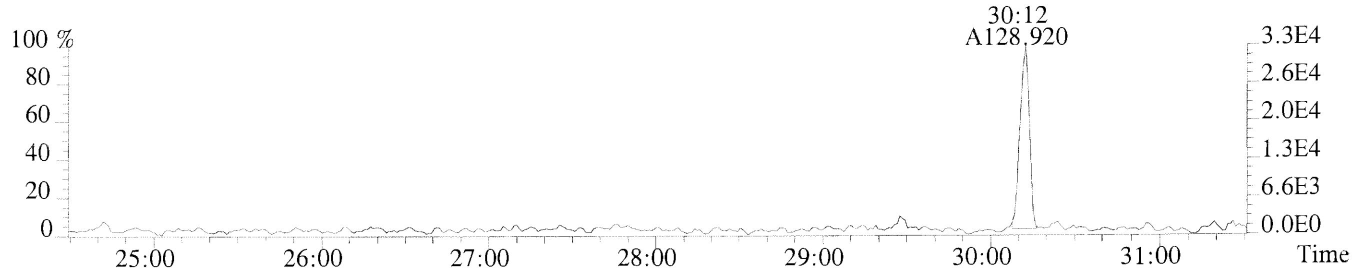


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

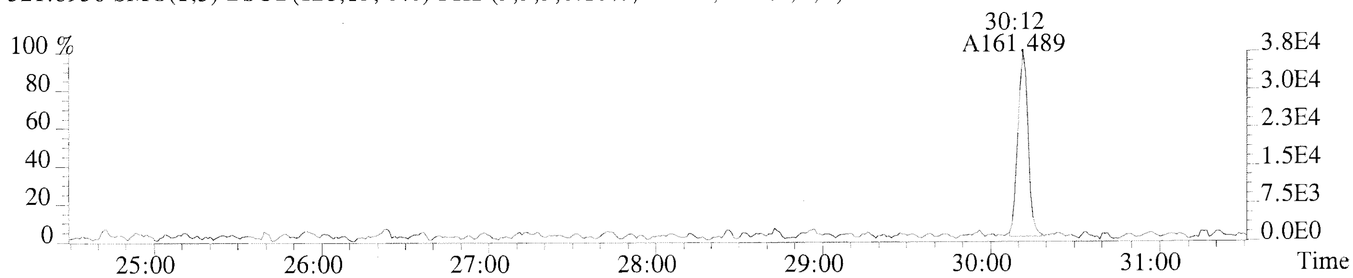


File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

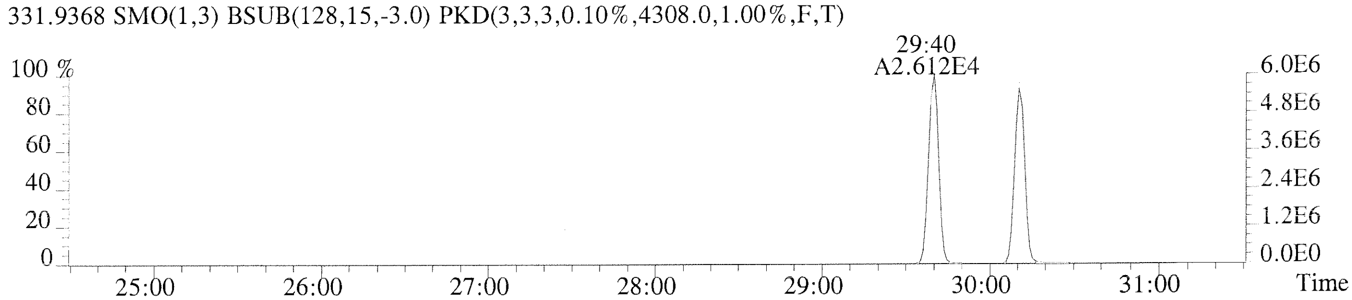
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



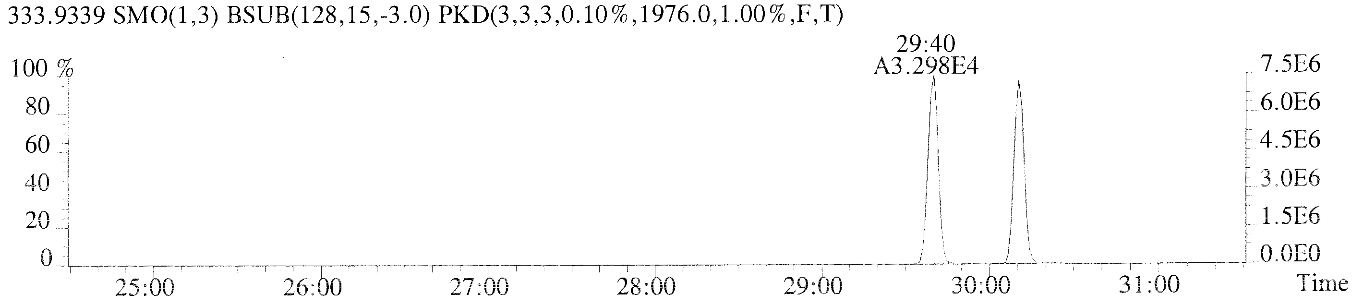
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



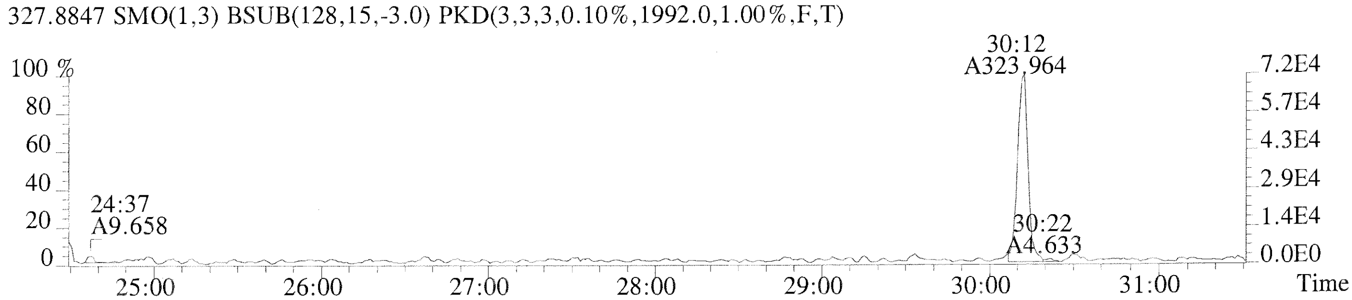
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4308.0,1.00%,F,T)



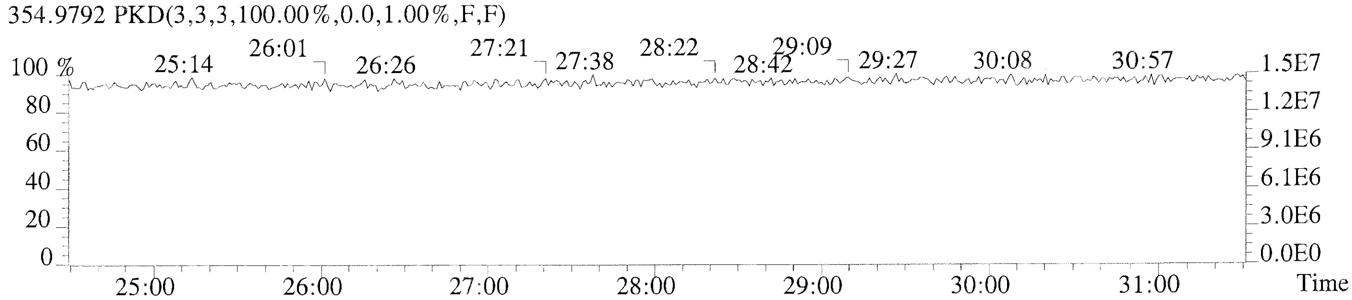
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



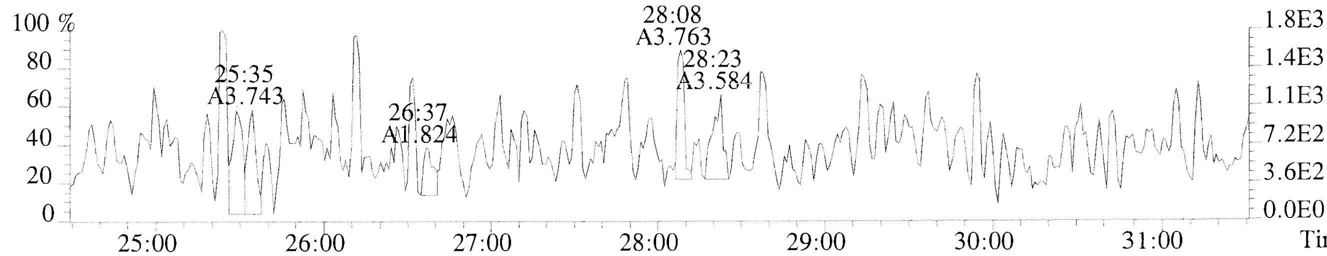
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



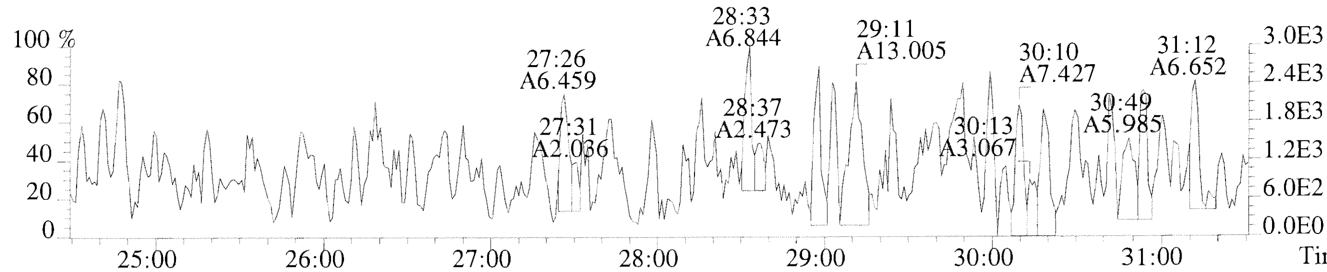
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



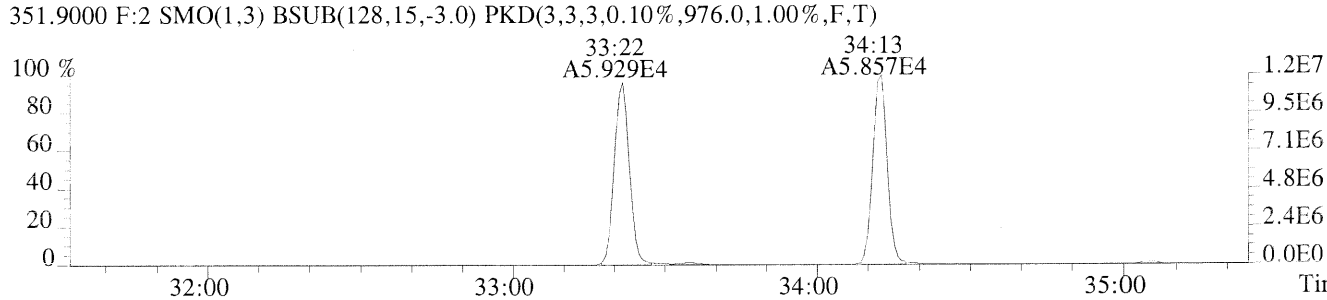
File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



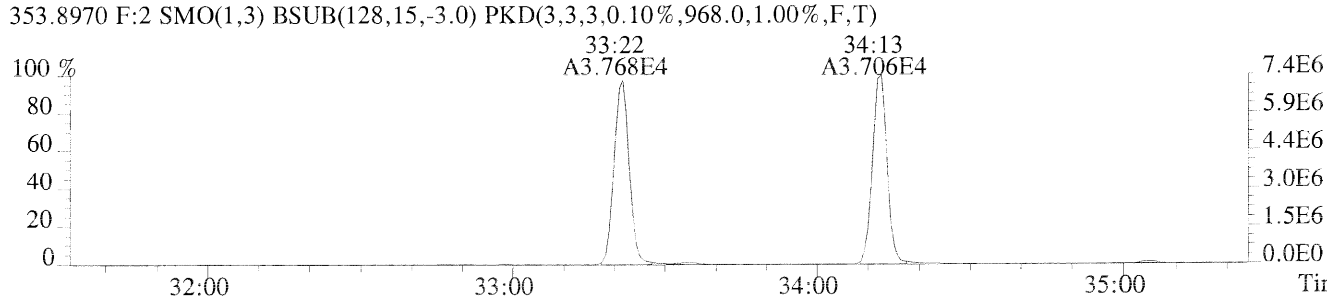
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



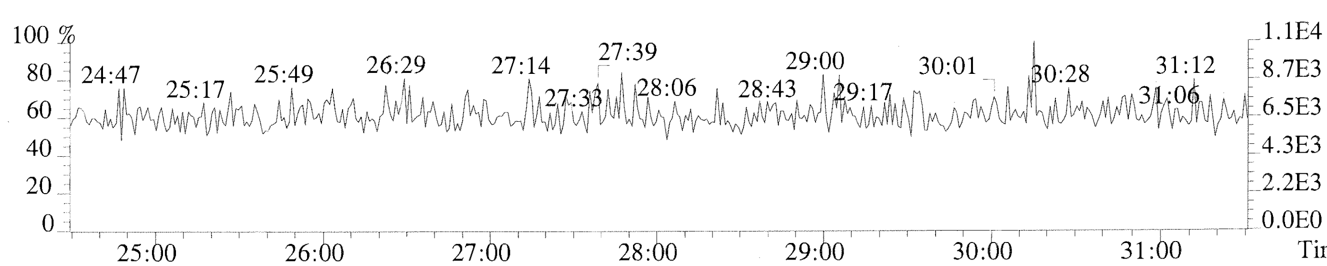
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



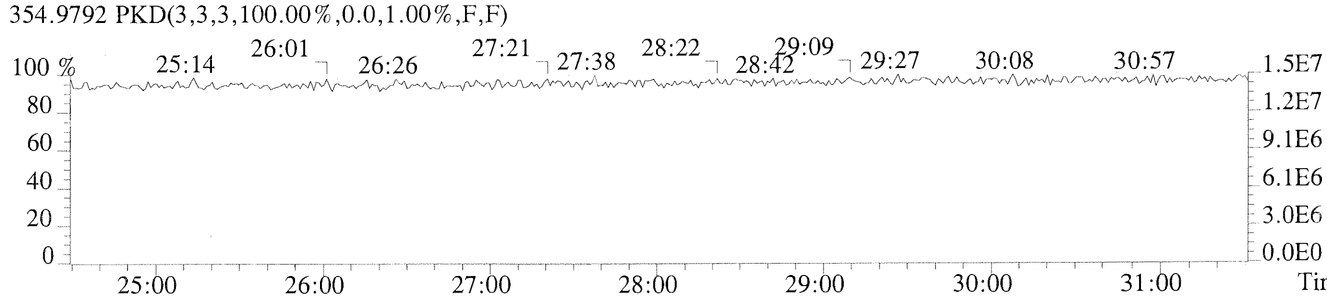
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

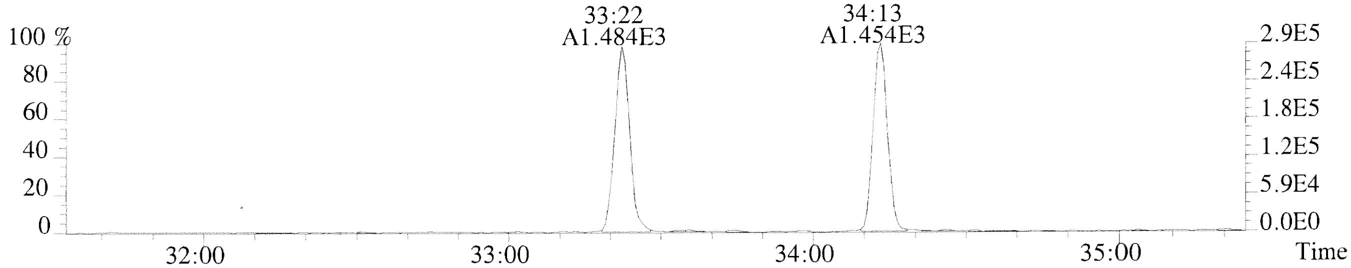


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

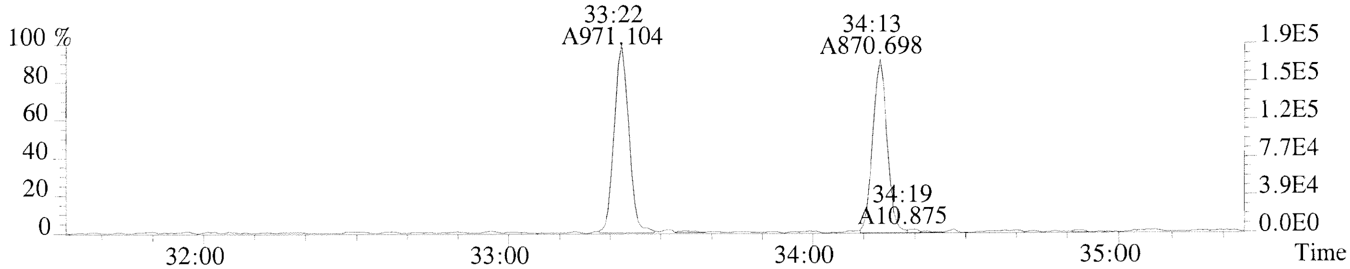


File:P169971 #1-350 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

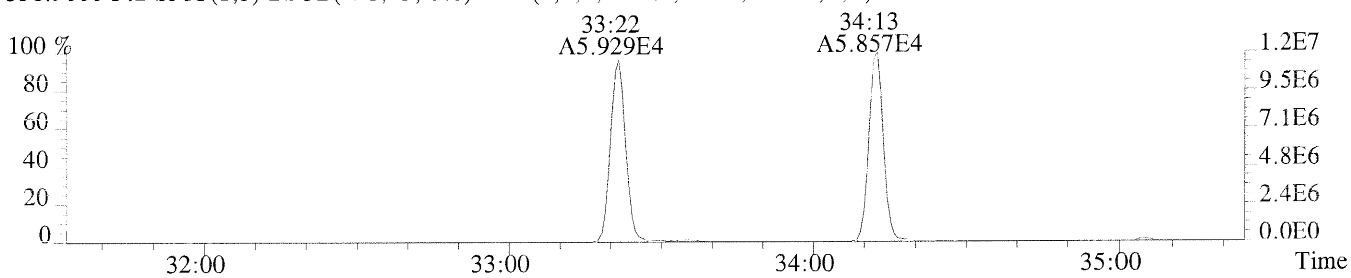
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



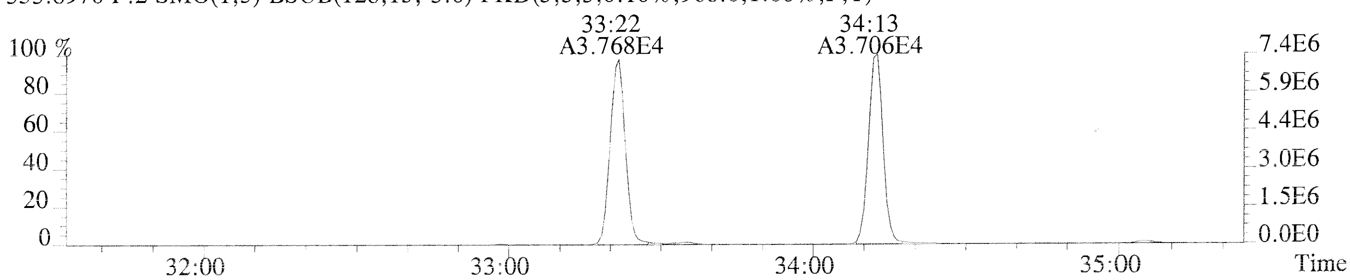
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



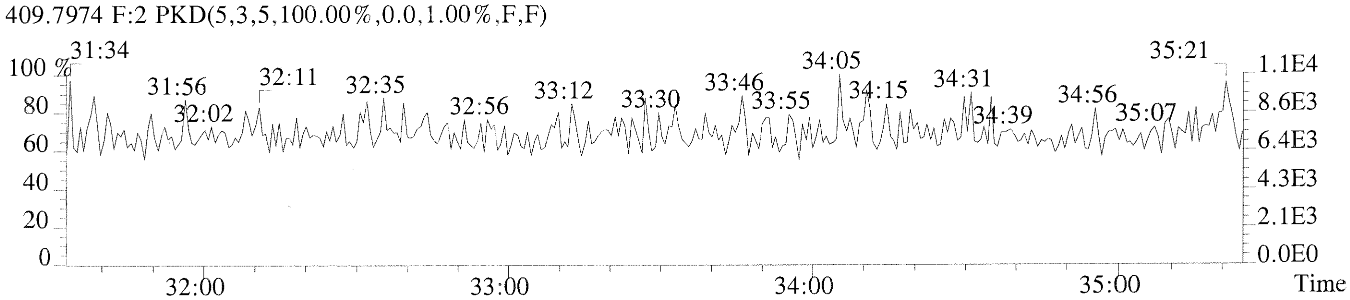
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



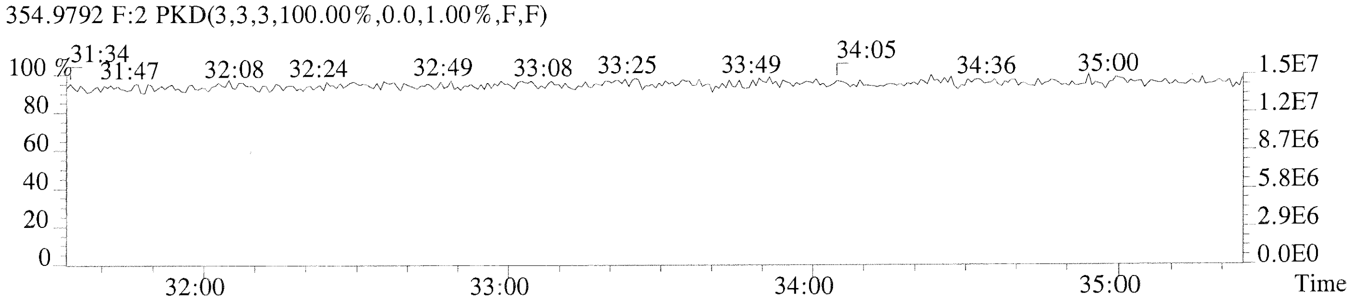
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



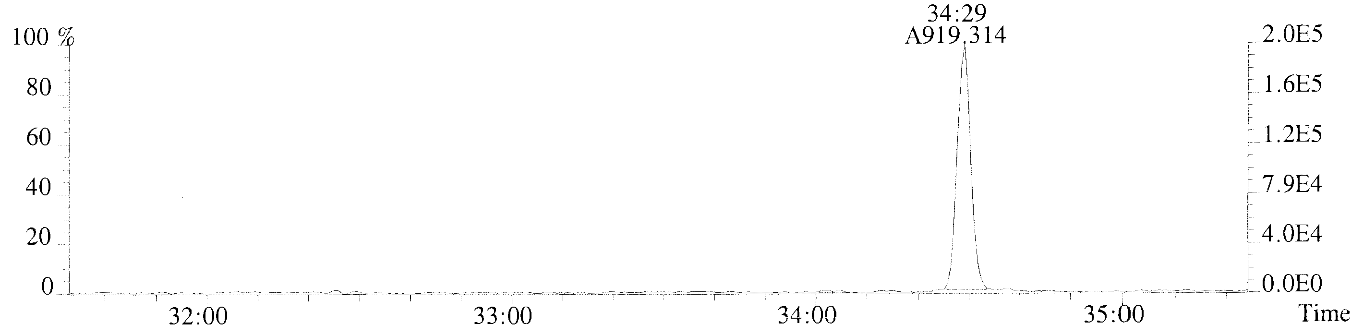
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



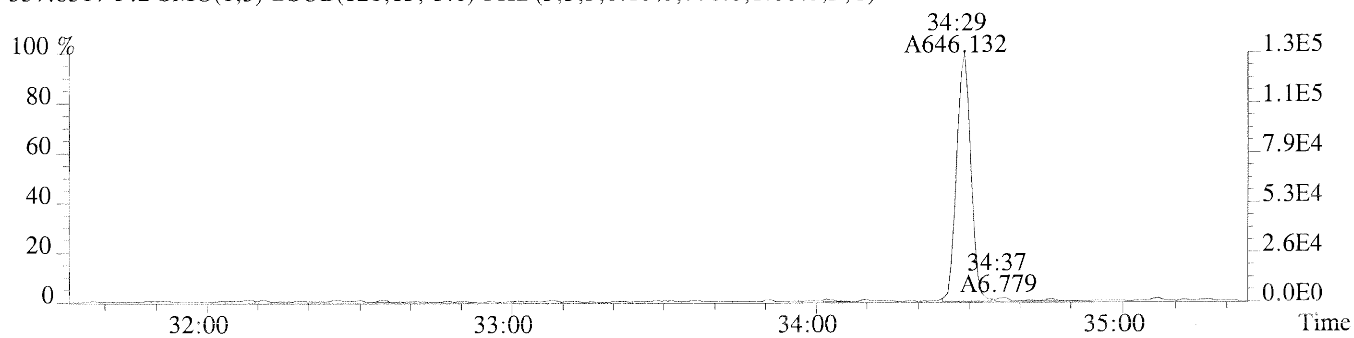
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



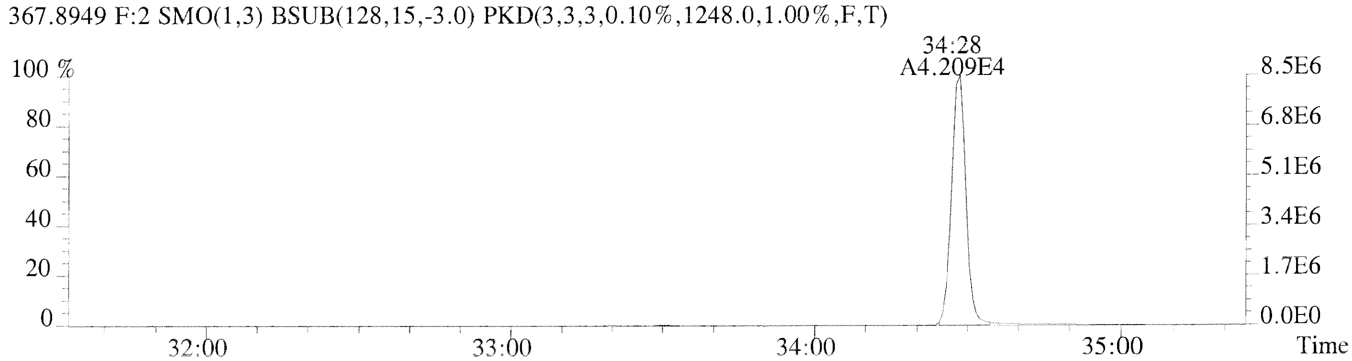
File:P169971 #1-350 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



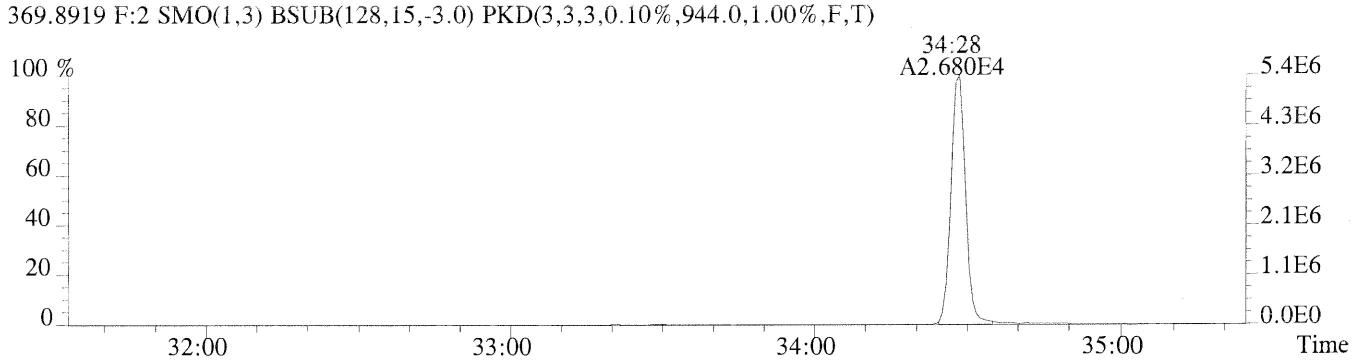
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



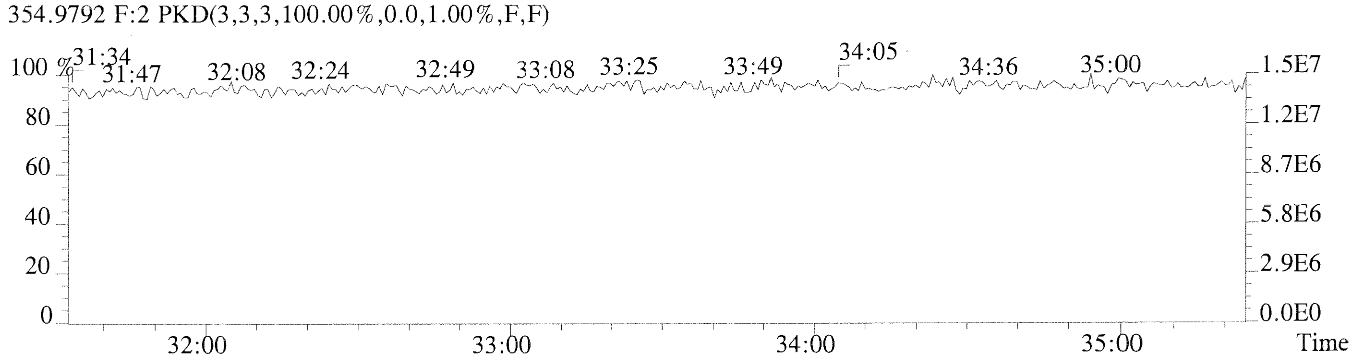
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)

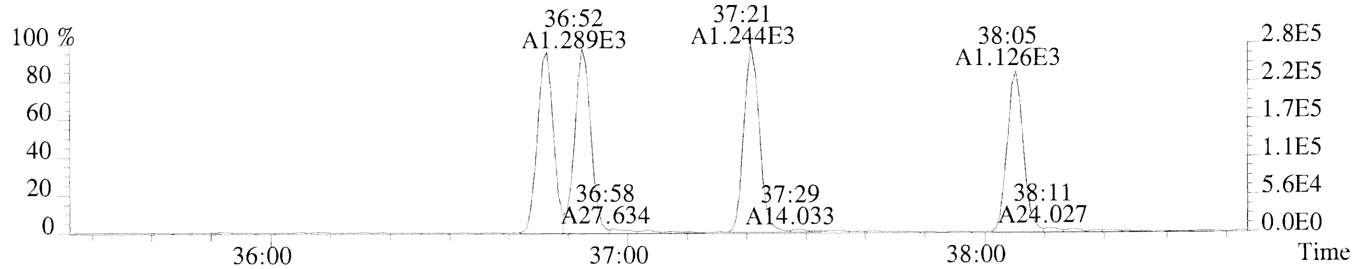


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

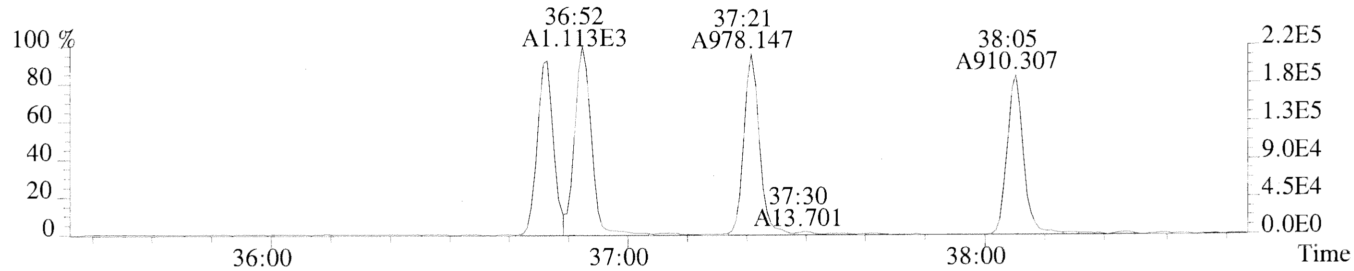


File:P169971 #1-299 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

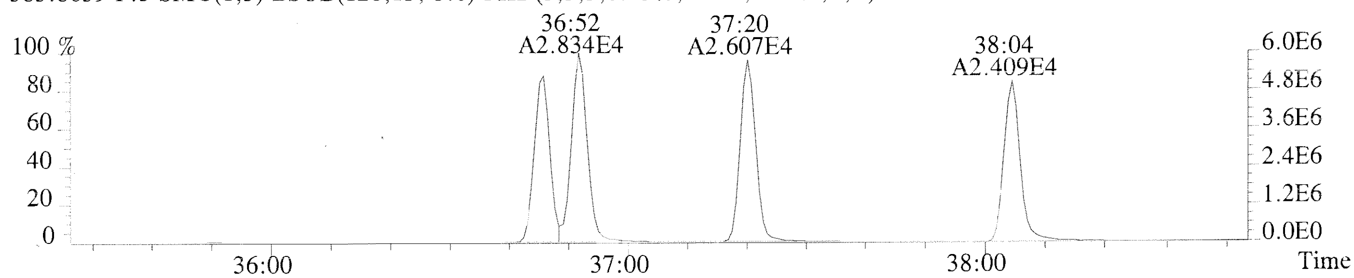
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



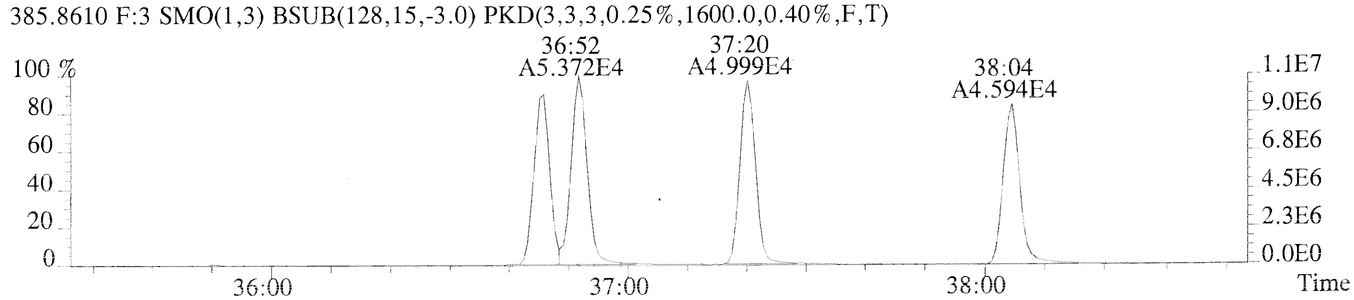
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



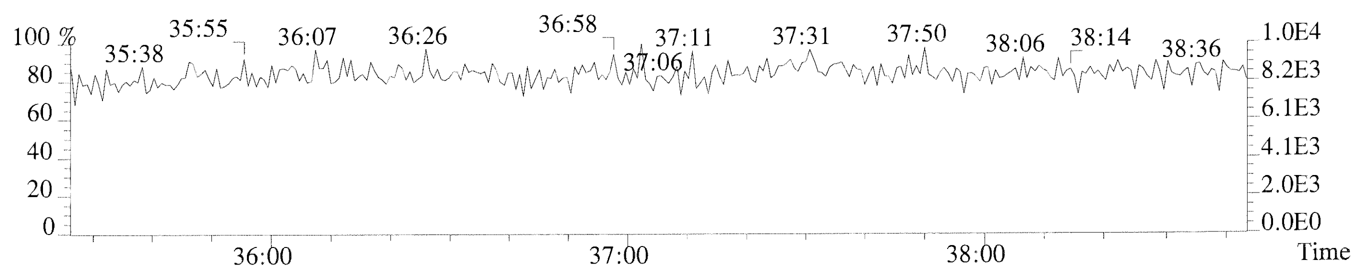
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



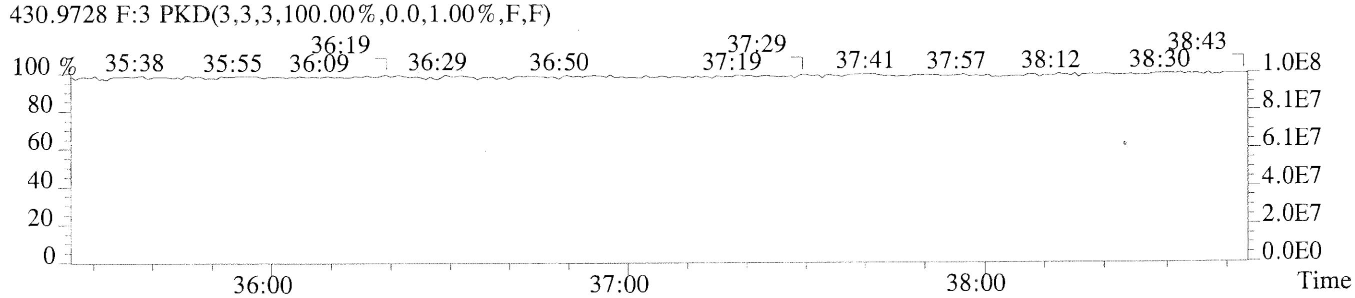
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



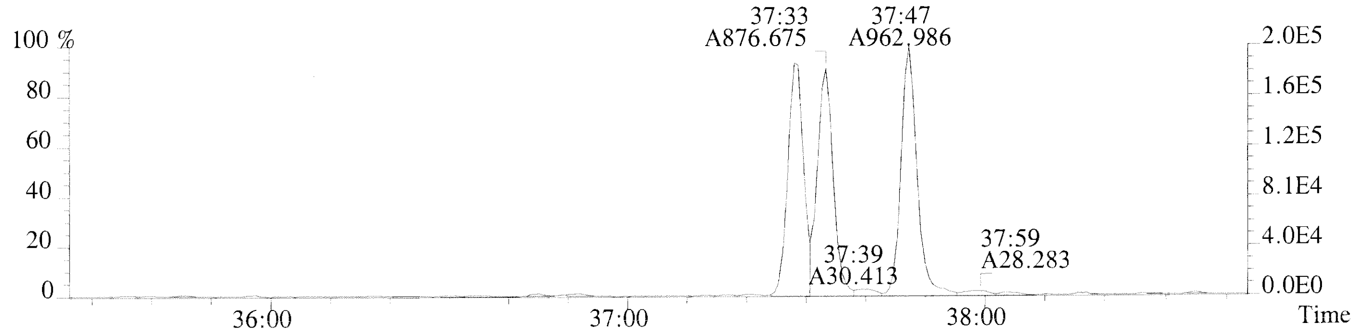
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



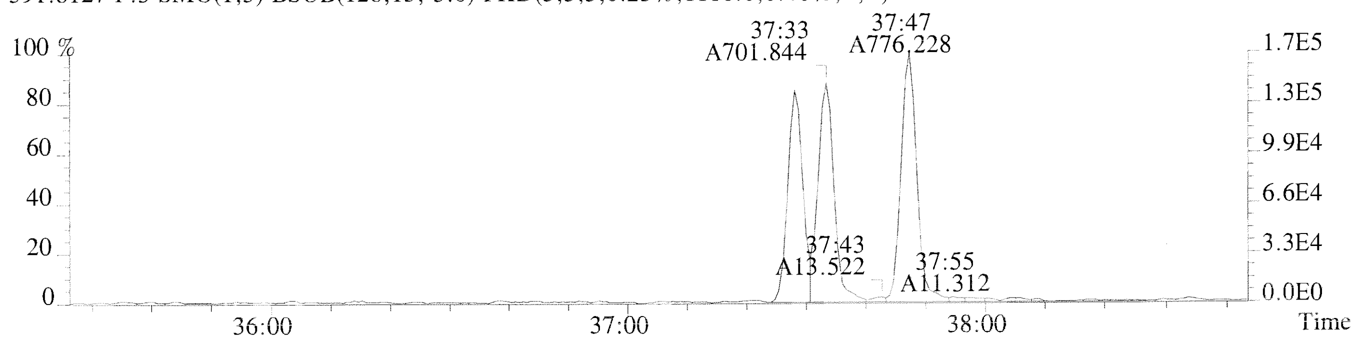
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



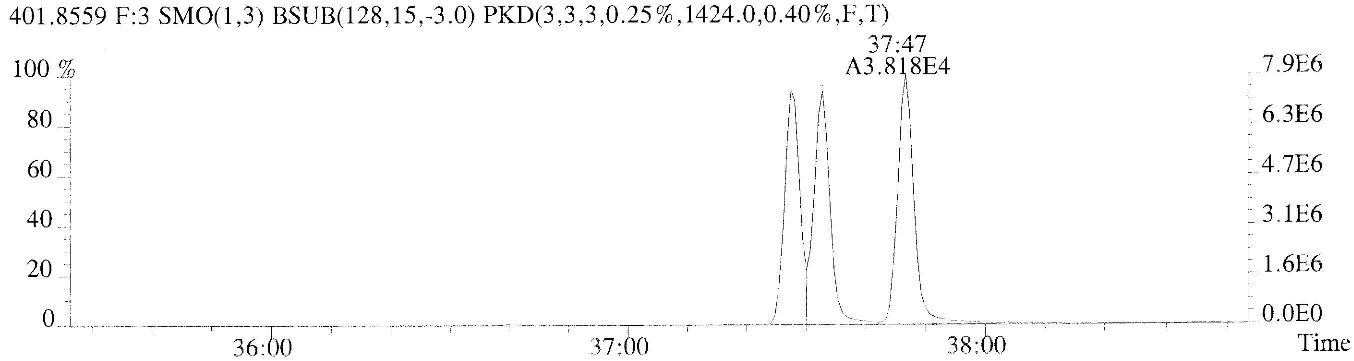
File:P169971 #1-299 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



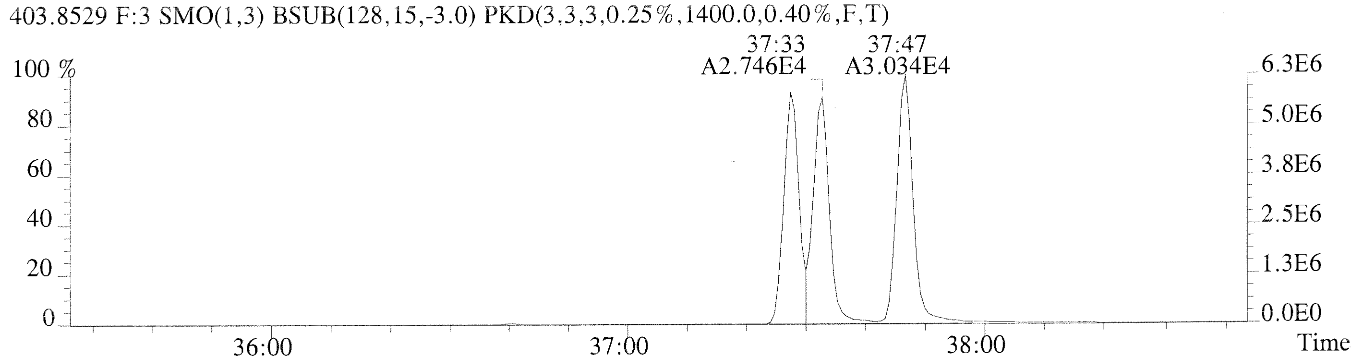
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



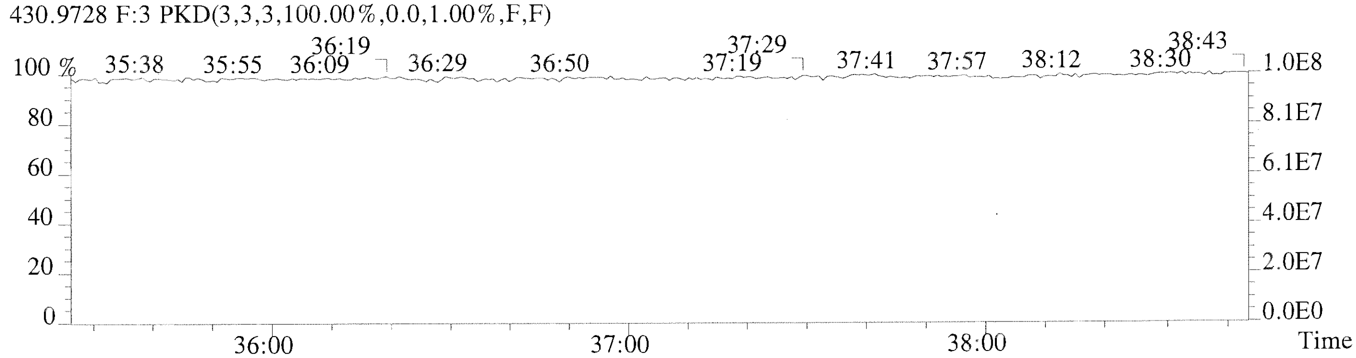
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



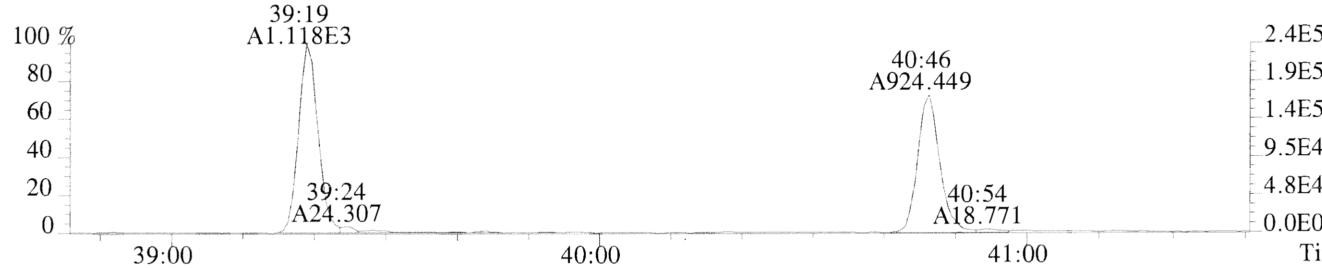
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



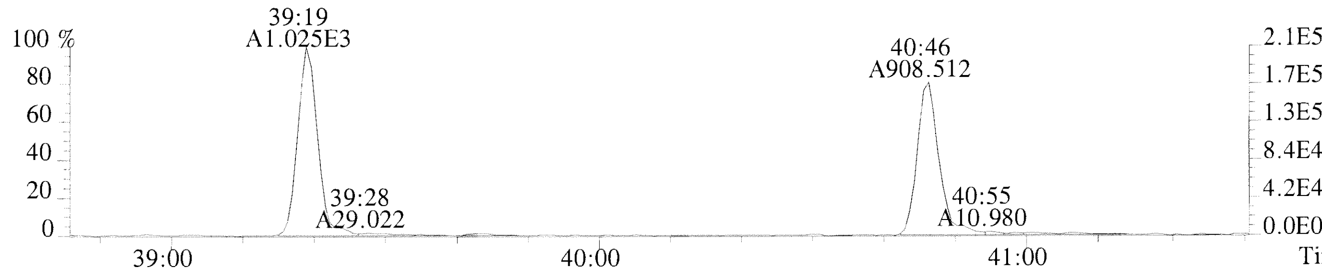
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



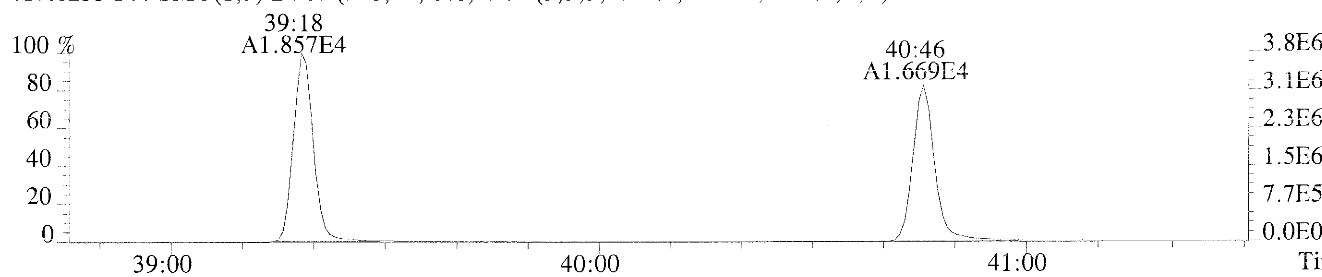
File:P169971 #1-250 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.50%,F,T)



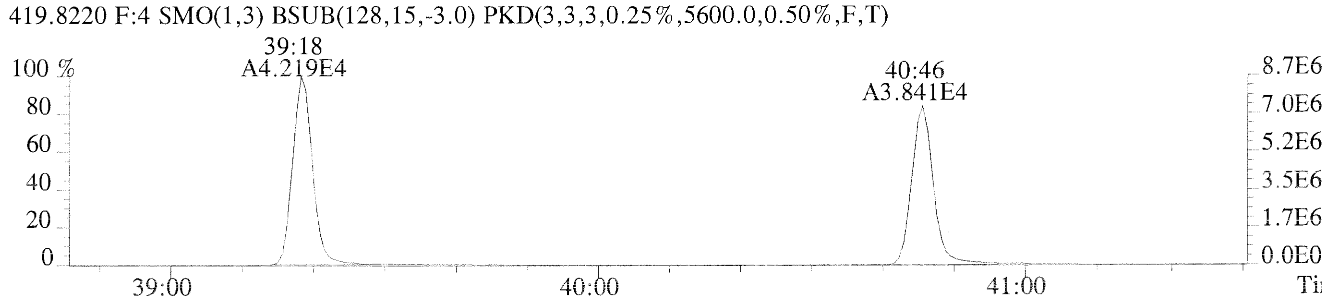
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.50%,F,T)



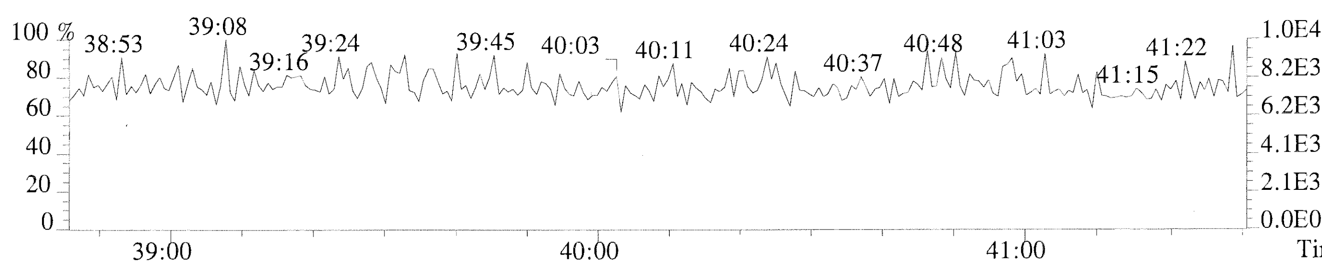
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.50%,F,T)



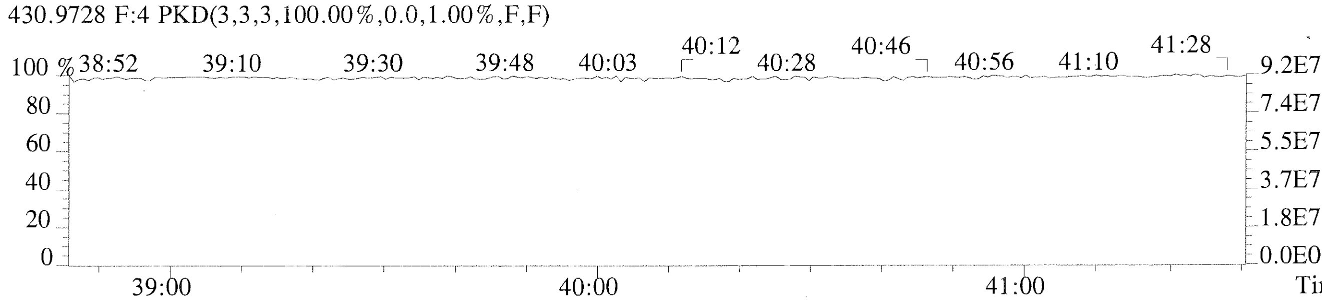
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5600.0,0.50%,F,T)



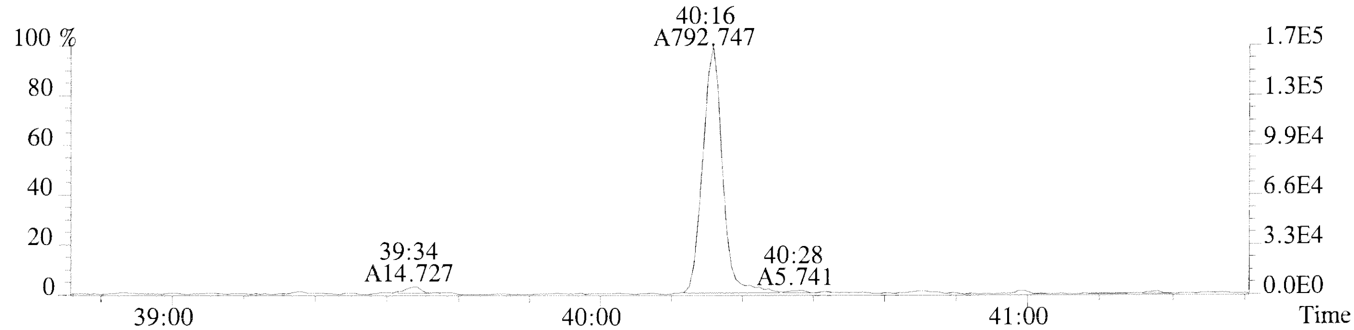
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



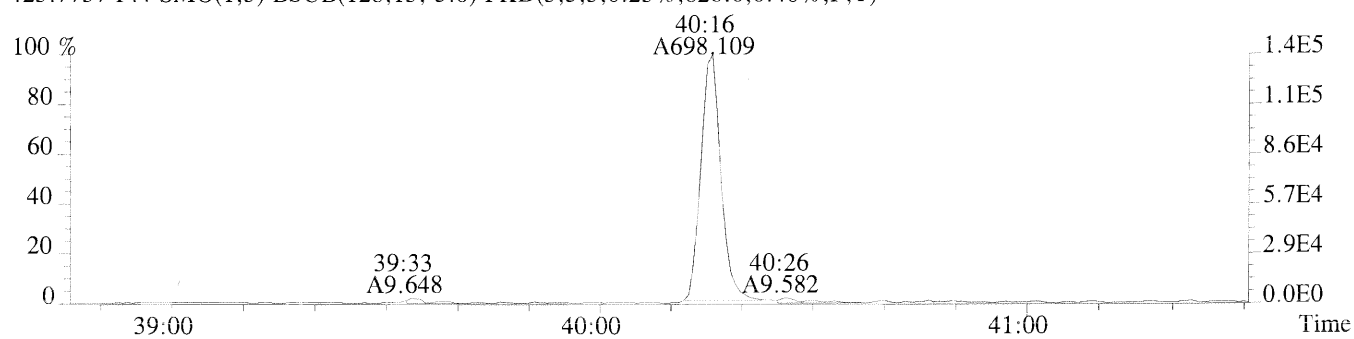
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



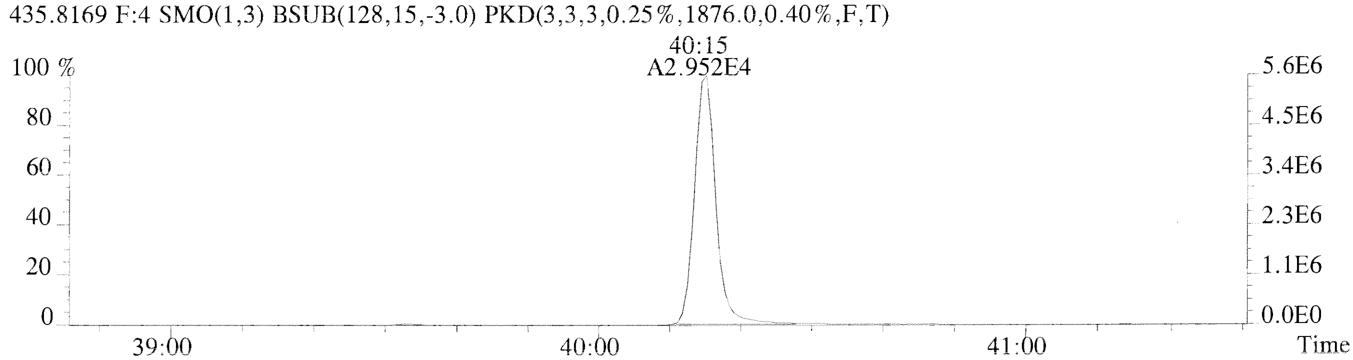
File:P169971 #1-250 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



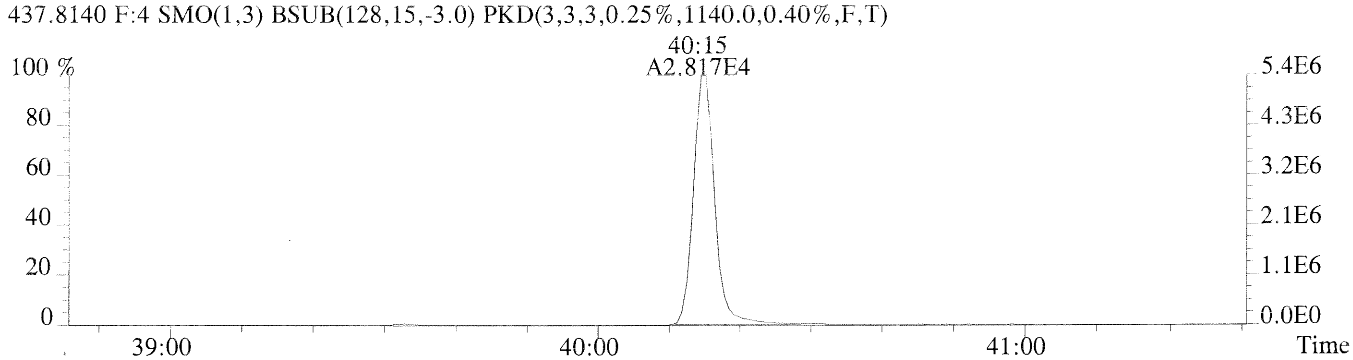
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



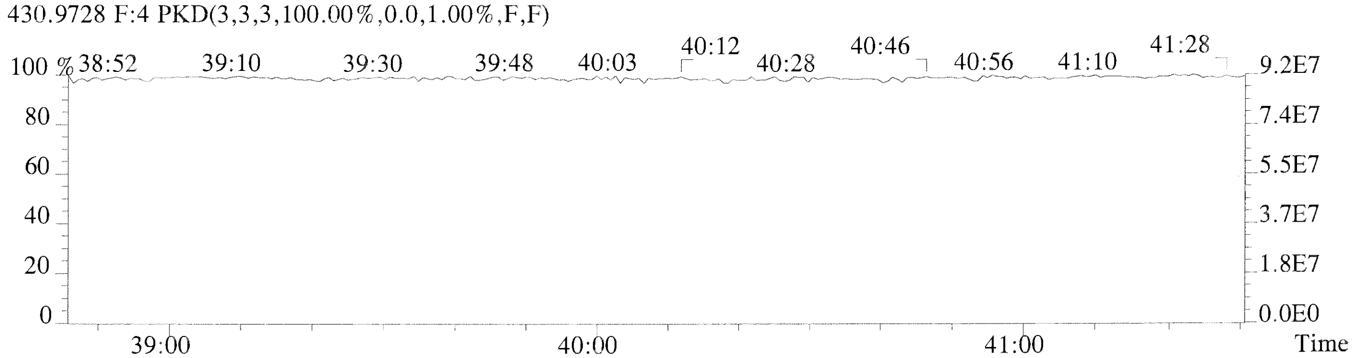
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)

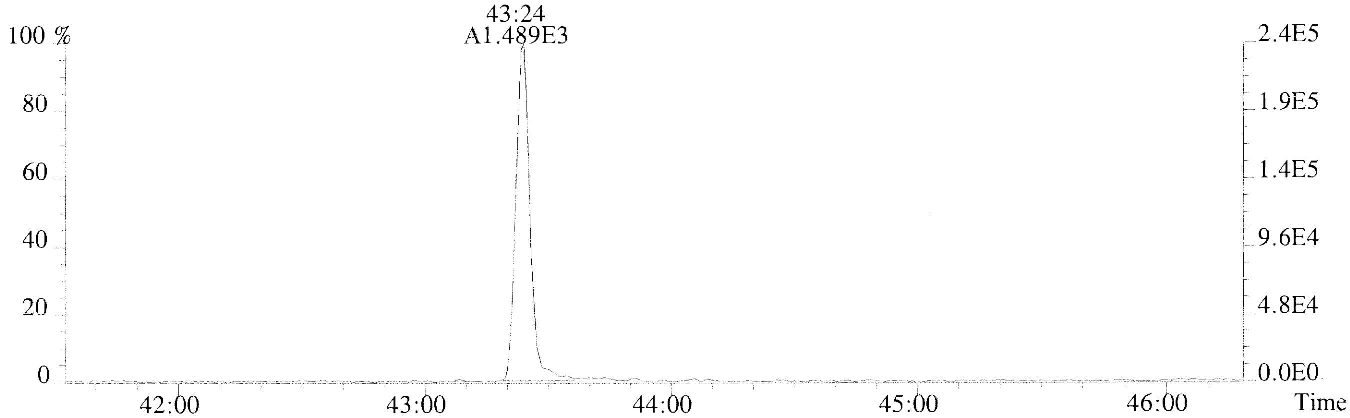


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

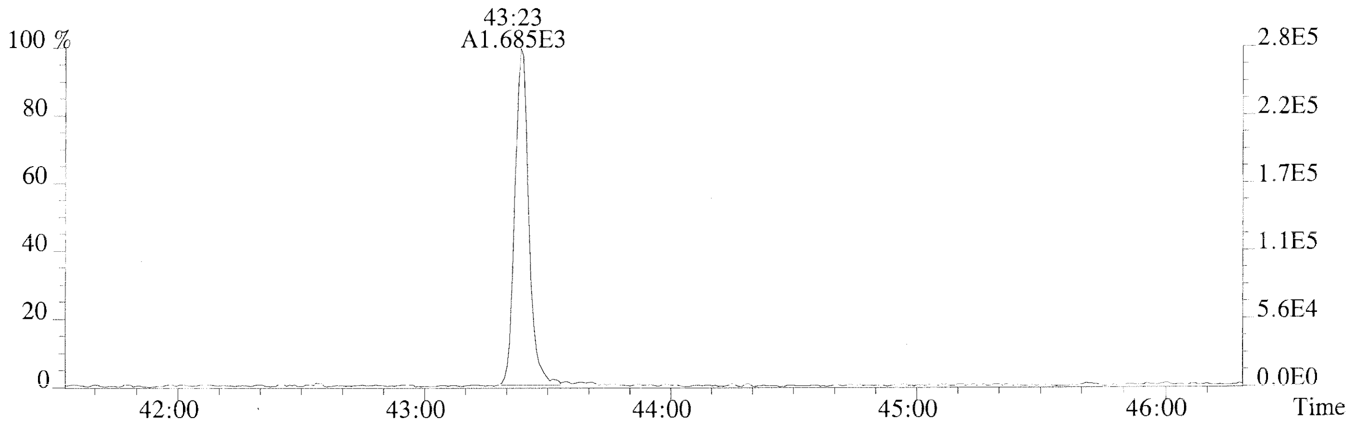


File:P169971 #1-438 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

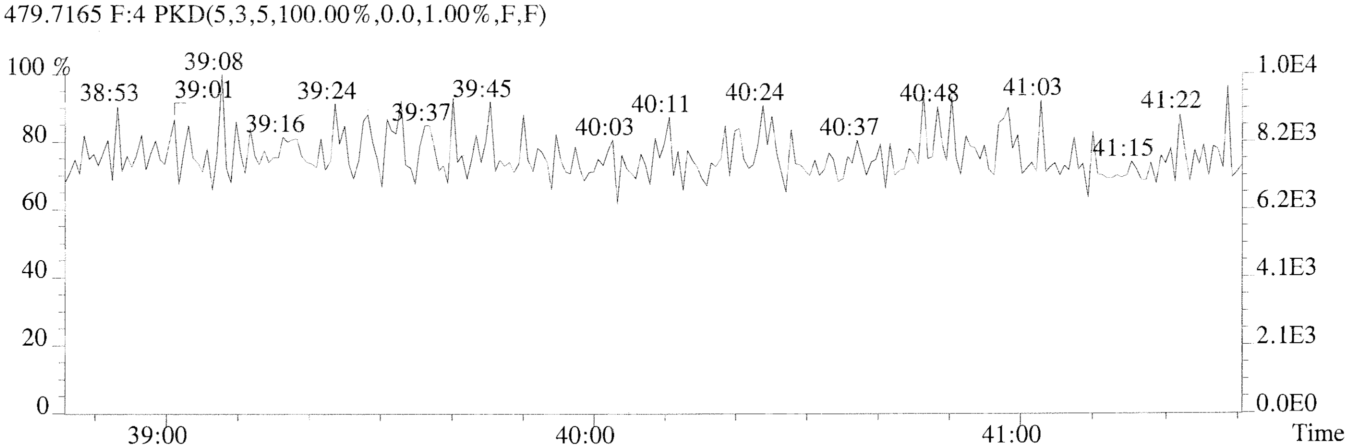
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



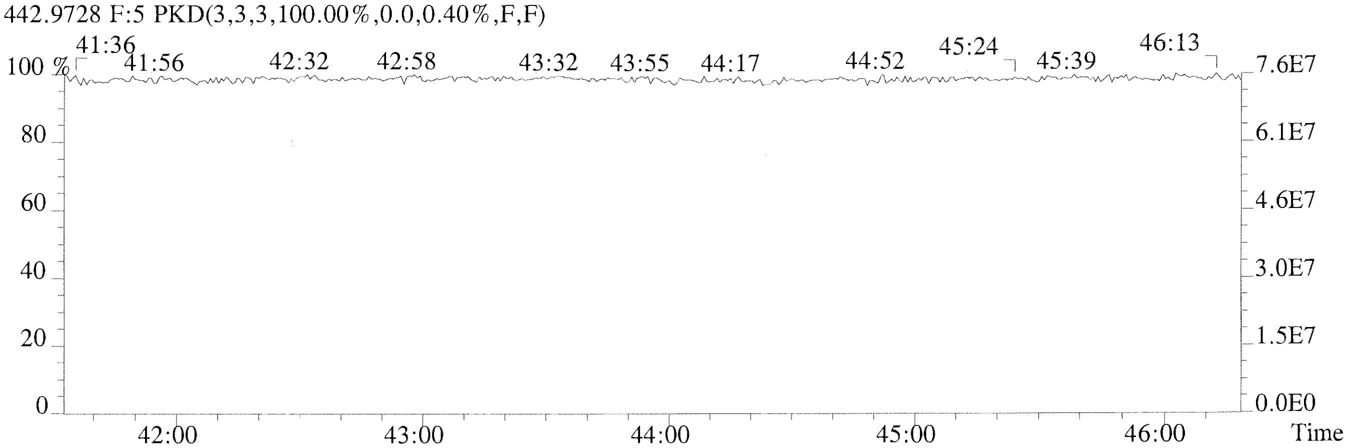
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1896.0,0.40%,F,T)



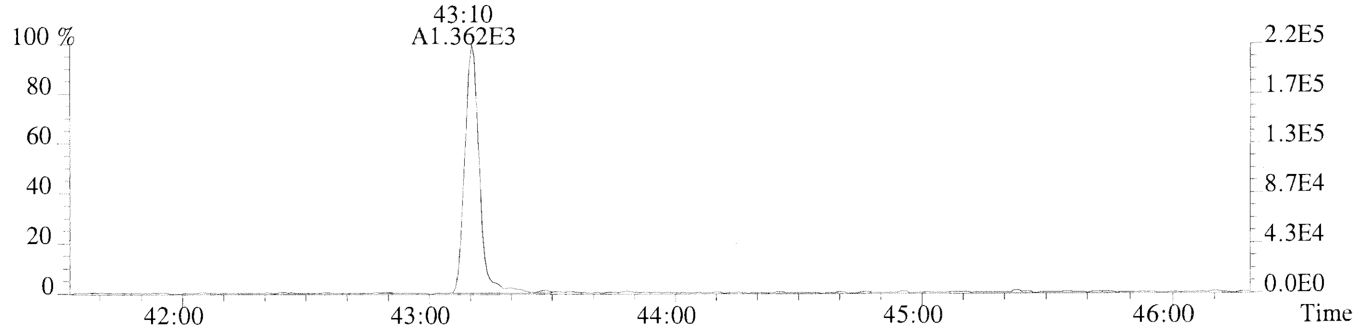
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



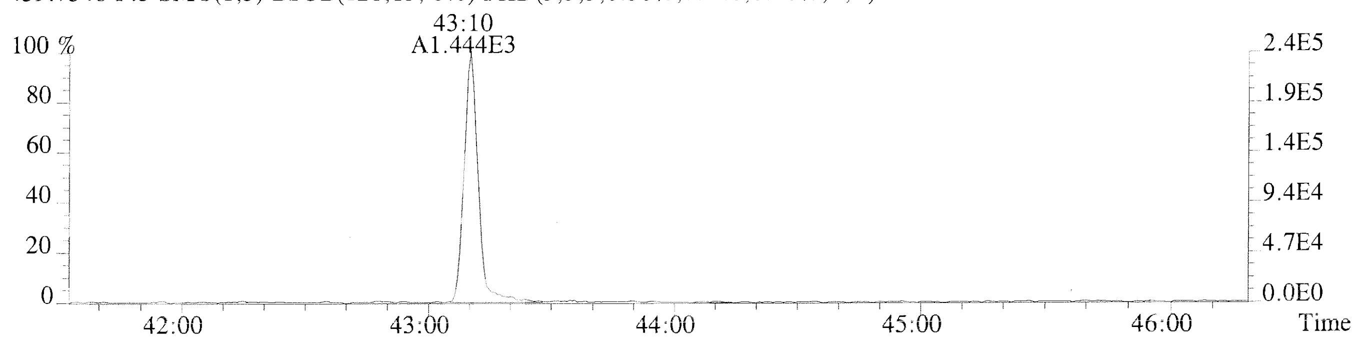
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



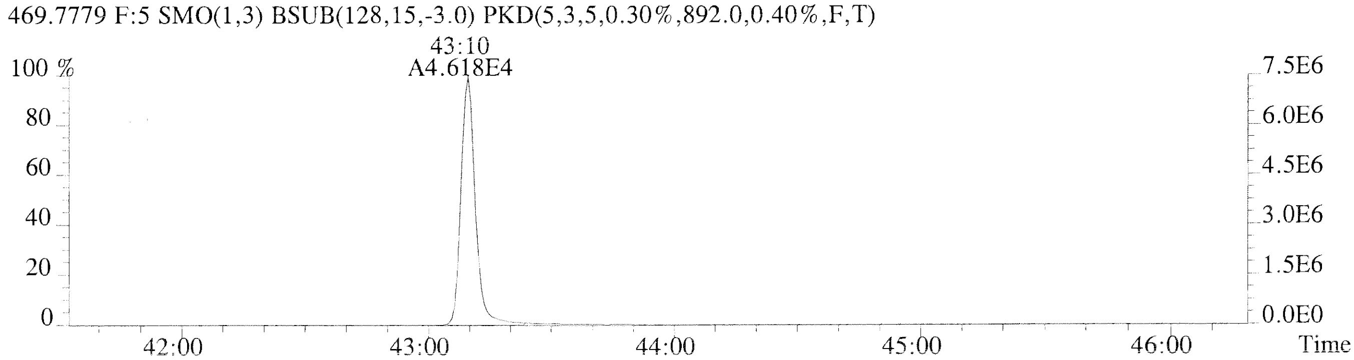
File:P169971 #1-438 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



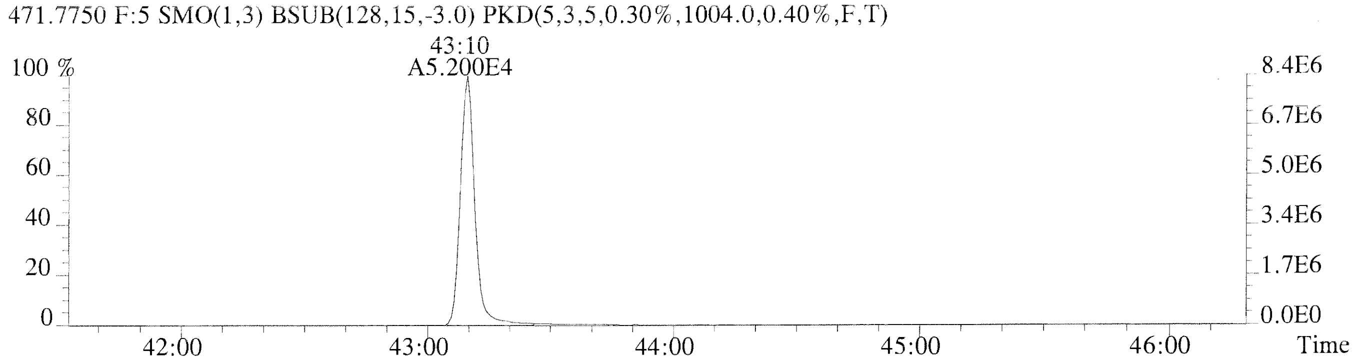
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



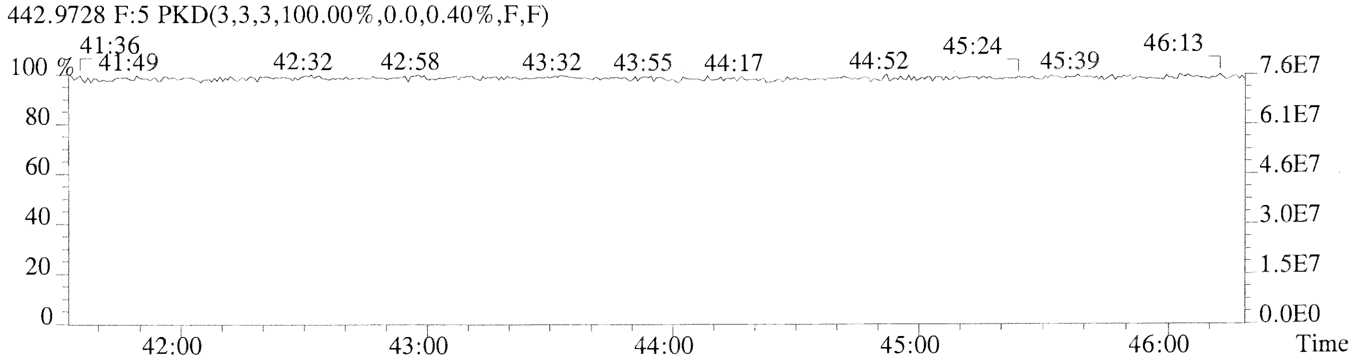
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-90-3B

Run #3 Filename P169972 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:58:18
Processed: 26-MAR-14 10:00:58 Sample ID: ICAL HRCC2/CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:28	6.797e+02	9.093e+02	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	6.675e+03	4.151e+03	1.61	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	6.030e+03	3.973e+03	1.52	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	5.387e+03	4.372e+03	1.23	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	5.746e+03	4.693e+03	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	5.347e+03	4.181e+03	1.28	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	4.745e+03	3.974e+03	1.19	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	4.684e+03	4.630e+03	1.01	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	4.107e+03	3.950e+03	1.04	yes	no	1.324
10	Unk	OCDF	43:24	6.830e+03	7.744e+03	0.88	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	5.678e+02	6.819e+02	0.83	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	4.215e+03	2.657e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	3.548e+03	2.868e+03	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	3.912e+03	3.143e+03	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	3.952e+03	3.273e+03	1.21	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	3.242e+03	3.272e+03	0.99	yes	no	1.016
17	Unk	OCDD	43:10	5.738e+03	6.315e+03	0.91	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.995e+04	5.114e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	6.495e+04	4.159e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	6.394e+04	4.078e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.667e+04	5.143e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	3.055e+04	5.878e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.872e+04	5.600e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.617e+04	5.040e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.085e+04	4.695e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.886e+04	4.228e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.721e+04	3.548e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	4.651e+04	2.939e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	3.583e+04	2.833e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	3.948e+04	3.114e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	3.334e+04	3.141e+04	1.06	yes	no	0.862
32	IS	13C-OCDD	43:09	5.279e+04	5.889e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.831e+04	3.594e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:46	4.249e+04	3.338e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	1.296e+03				no	1.125

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1613RESP

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
D12-90-3B

Run #3 Filename P169972 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:58:18
Processed: 26-MAR-14 08:20:001 LAB. ID: ICAL HRCC2/CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+05	1.03e+03	1.4e+02	1.85e+05	3.37e+03	5.5e+01
2	1,2,3,7,8-PeCDF	1.28e+06	8.92e+02	1.4e+03	8.02e+05	2.07e+03	3.9e+02
3	2,3,4,7,8-PeCDF	1.22e+06	8.92e+02	1.4e+03	8.08e+05	2.07e+03	3.9e+02
4	1,2,3,4,7,8-HxCDF	1.17e+06	1.62e+03	7.2e+02	9.51e+05	1.22e+03	7.8e+02
5	1,2,3,6,7,8-HxCDF	1.18e+06	1.62e+03	7.3e+02	9.54e+05	1.22e+03	7.8e+02
6	2,3,4,6,7,8-HxCDF	1.15e+06	1.62e+03	7.1e+02	9.09e+05	1.22e+03	7.4e+02
7	1,2,3,7,8,9-HxCDF	1.01e+06	1.62e+03	6.2e+02	8.40e+05	1.22e+03	6.9e+02
8	1,2,3,4,6,7,8-HpCDF	9.55e+05	8.96e+02	1.1e+03	9.33e+05	1.52e+03	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	7.48e+05	8.96e+02	8.3e+02	7.46e+05	1.52e+03	4.9e+02
10	OCDF	1.07e+06	9.00e+02	1.2e+03	1.20e+06	1.69e+03	7.1e+02
11	2,3,7,8-TCDD	1.21e+05	9.64e+02	1.3e+02	1.56e+05	1.27e+03	1.2e+02
12	1,2,3,7,8-PeCDD	8.78e+05	1.60e+03	5.5e+02	5.45e+05	1.14e+03	4.8e+02
13	1,2,3,4,7,8-HxCDD	8.11e+05	1.16e+03	7.0e+02	6.41e+05	1.16e+03	5.5e+02
14	1,2,3,6,7,8-HxCDD	8.05e+05	1.16e+03	7.0e+02	6.51e+05	1.16e+03	5.6e+02
15	1,2,3,7,8,9-HxCDD	8.28e+05	1.16e+03	7.2e+02	6.75e+05	1.16e+03	5.8e+02
16	1,2,3,4,6,7,8-HpCDD	6.26e+05	1.23e+03	5.1e+02	6.15e+05	9.48e+02	6.5e+02
17	OCDD	9.06e+05	7.60e+02	1.2e+03	9.87e+05	6.92e+02	1.4e+03
18	13C-2,3,7,8-TCDF	8.67e+06	1.52e+03	5.7e+03	1.11e+07	1.76e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.24e+07	1.02e+03	1.2e+04	7.97e+06	1.64e+03	4.8e+03
20	13C-2,3,4,7,8-PeCDF	1.27e+07	1.02e+03	1.2e+04	8.10e+06	1.64e+03	4.9e+03
21	13C-1,2,3,4,7,8-HxCDF	5.77e+06	1.01e+03	5.7e+03	1.11e+07	1.74e+03	6.4e+03
22	13C-1,2,3,6,7,8-HxCDF	6.22e+06	1.01e+03	6.2e+03	1.21e+07	1.74e+03	6.9e+03
23	13C-2,3,4,6,7,8-HxCDF	6.03e+06	1.01e+03	6.0e+03	1.18e+07	1.74e+03	6.8e+03
24	13C-1,2,3,7,8,9-HxCDF	5.40e+06	1.01e+03	5.3e+03	1.04e+07	1.74e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.16e+06	2.25e+03	1.8e+03	9.28e+06	3.43e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.43e+06	2.25e+03	1.5e+03	7.76e+06	3.43e+03	2.3e+03
27	13C-2,3,7,8-TCDD	6.25e+06	4.83e+03	1.3e+03	8.14e+06	1.77e+03	4.6e+03
28	13C-1,2,3,7,8-PeCDD	9.48e+06	1.50e+03	6.3e+03	5.99e+06	9.28e+02	6.5e+03
29	13C-1,2,3,4,7,8-HxCDD	8.14e+06	1.26e+03	6.5e+03	6.35e+06	1.33e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	1.26e+03	6.3e+03	6.37e+06	1.33e+03	4.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.28e+06	1.04e+03	6.0e+03	5.94e+06	7.32e+02	8.1e+03
32	13C-OCDD	8.20e+06	1.08e+03	7.6e+03	9.19e+06	7.40e+02	1.2e+04
33	13C-1,2,3,4-TCDD	6.39e+06	4.83e+03	1.3e+03	8.22e+06	1.77e+03	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.51e+06	1.26e+03	6.8e+03	6.70e+06	1.33e+03	5.0e+03
35	37Cl-2,3,7,8-TCDD	3.03e+05	1.59e+03	1.9e+02			

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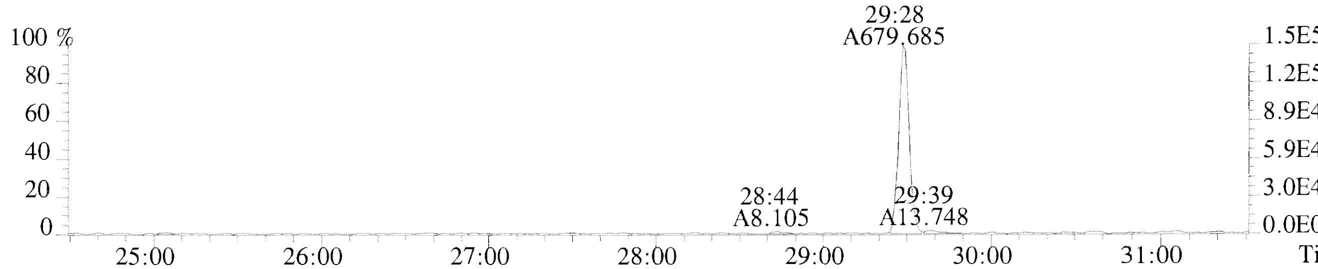
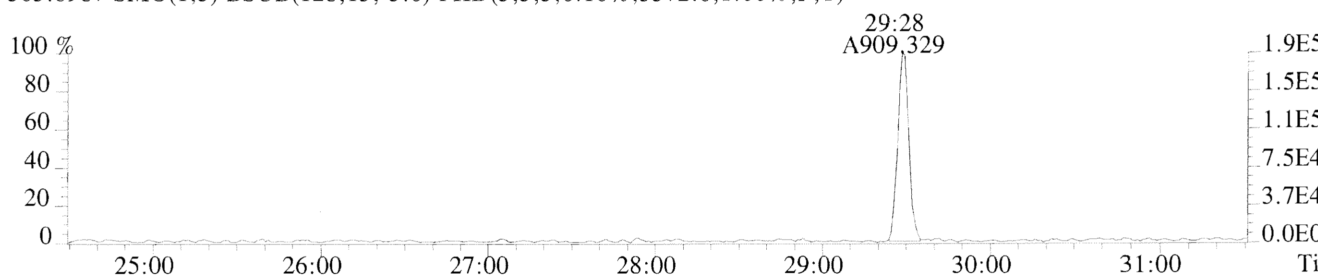
File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

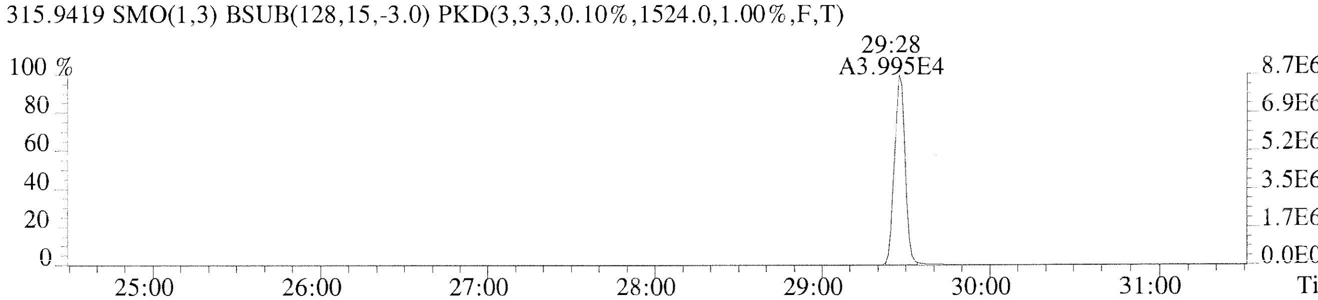
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



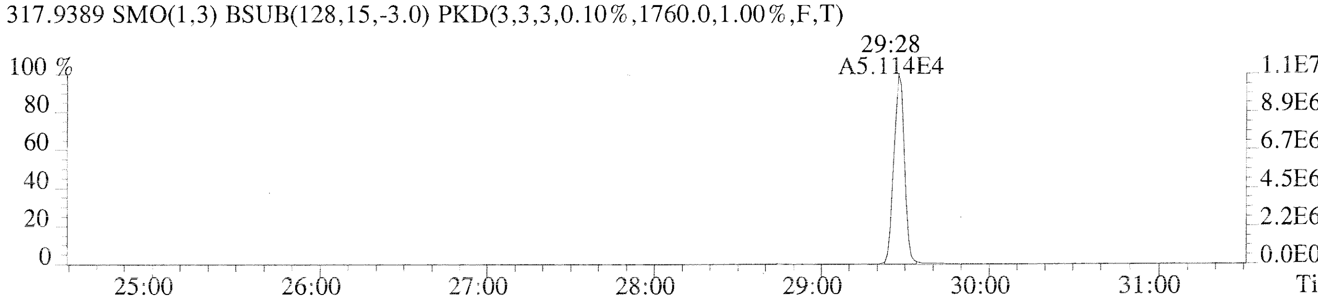
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



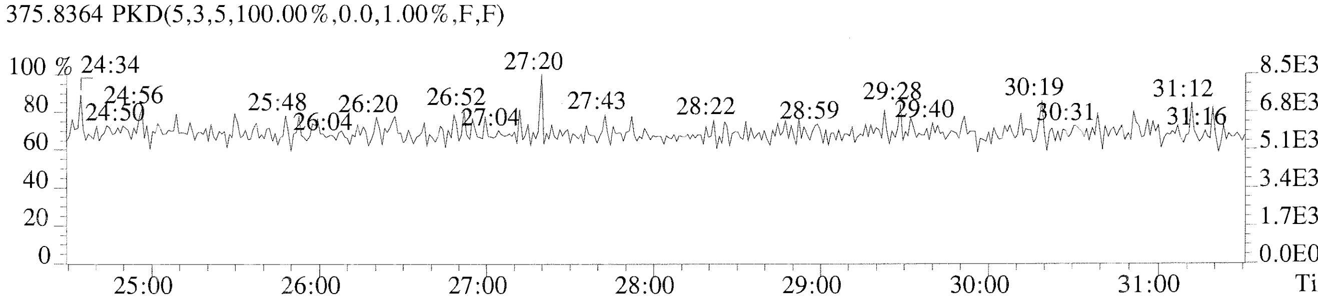
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



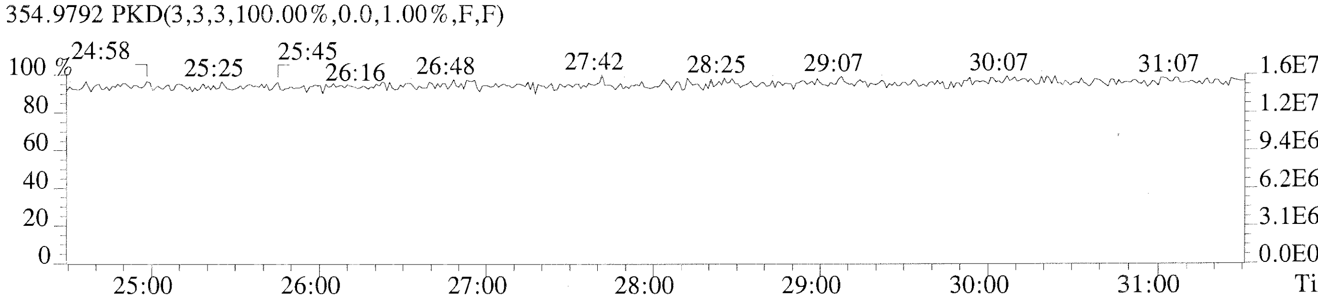
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



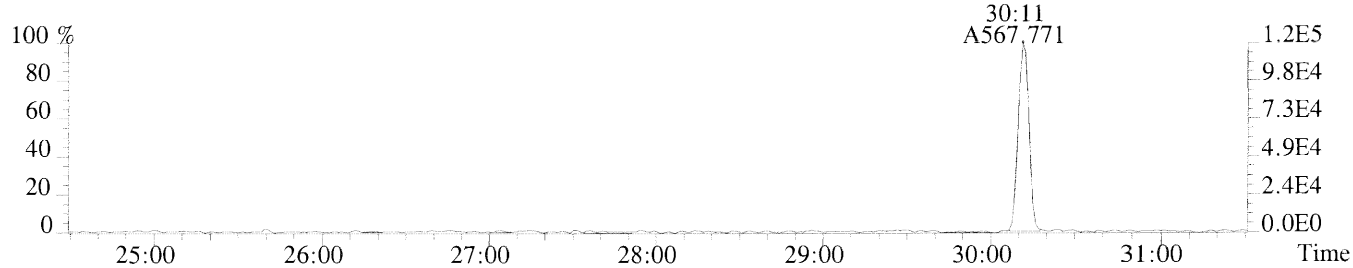
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



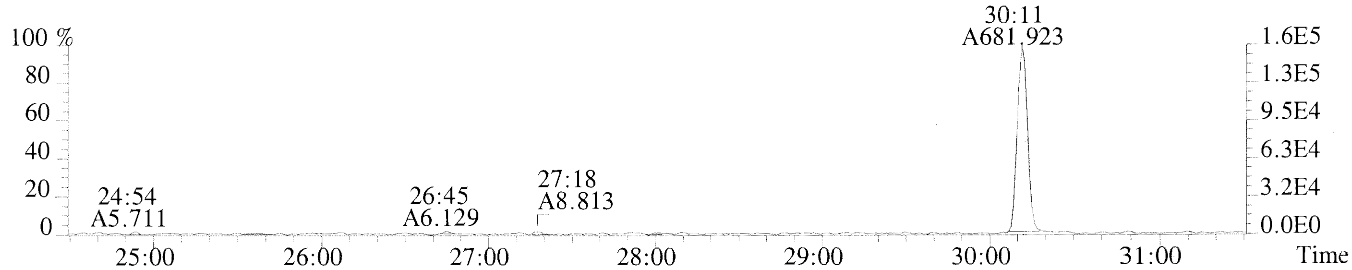
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



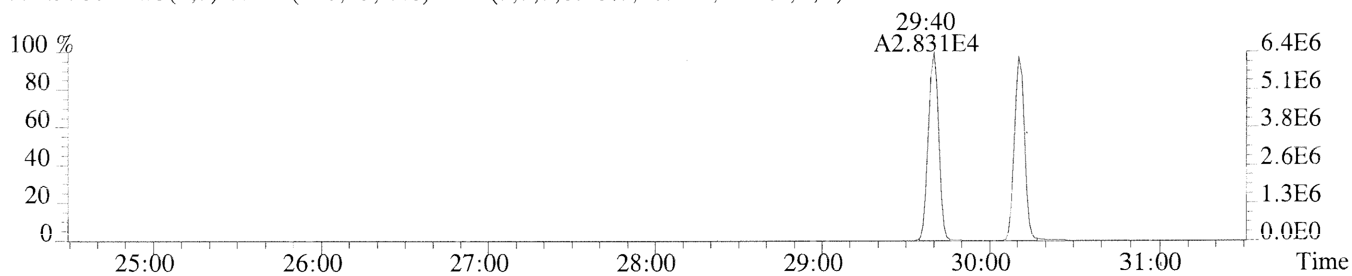
File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



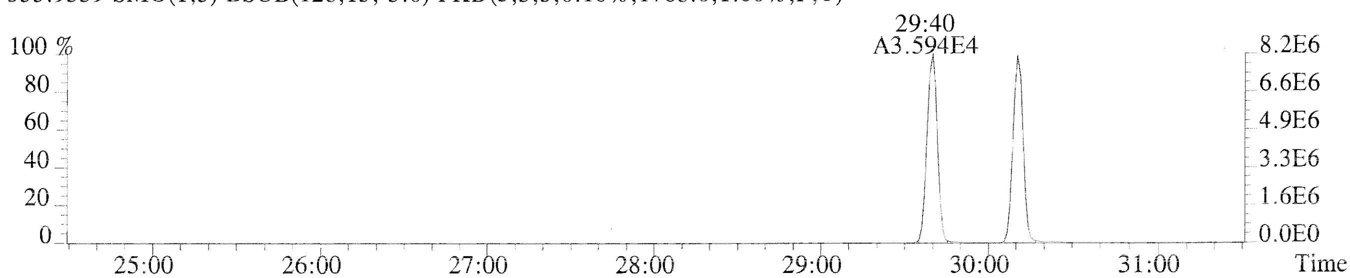
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



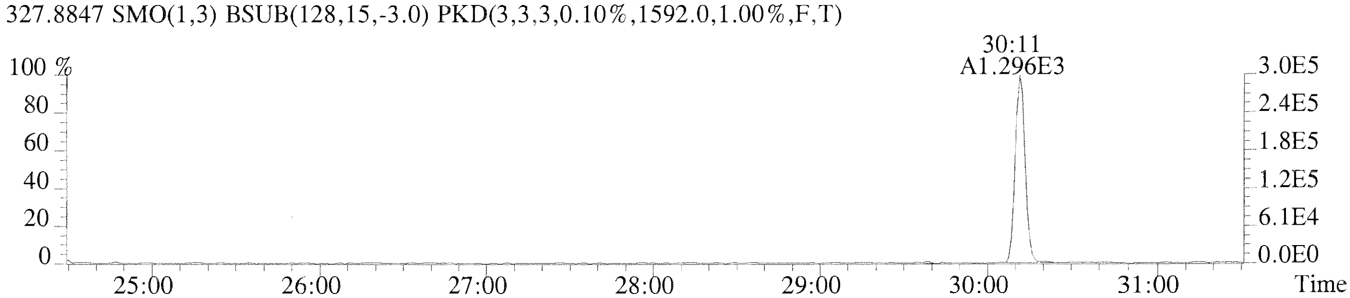
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4832.0,1.00%,F,T)



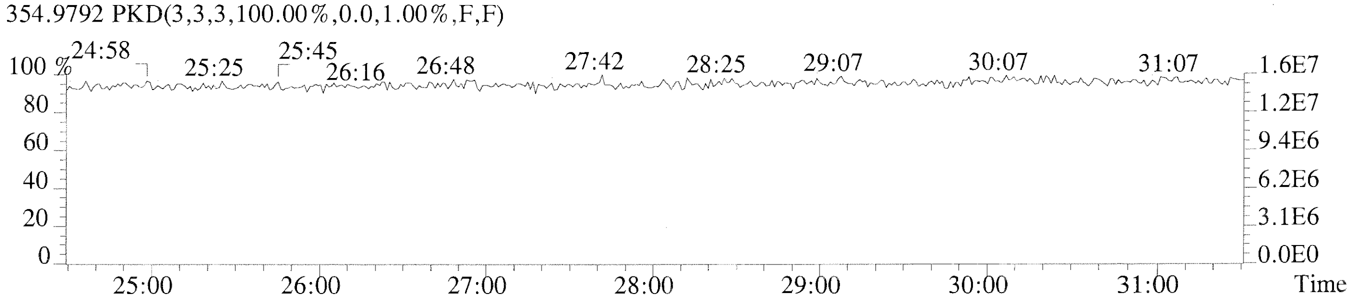
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)

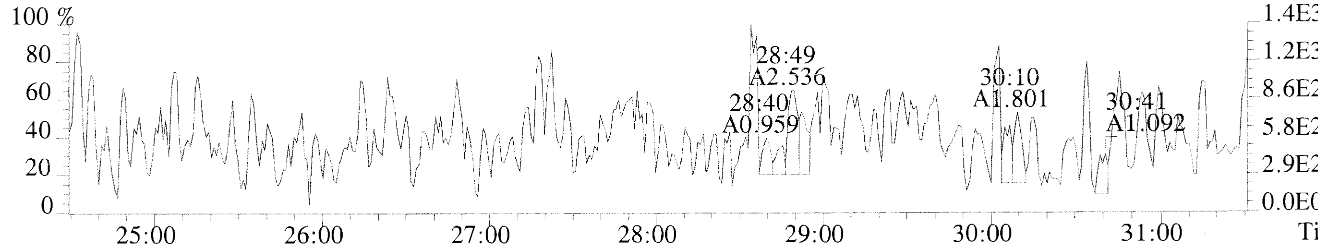


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

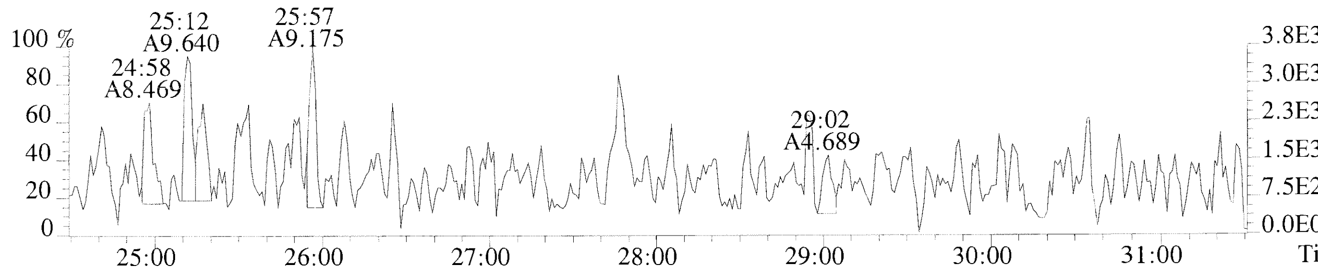


File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

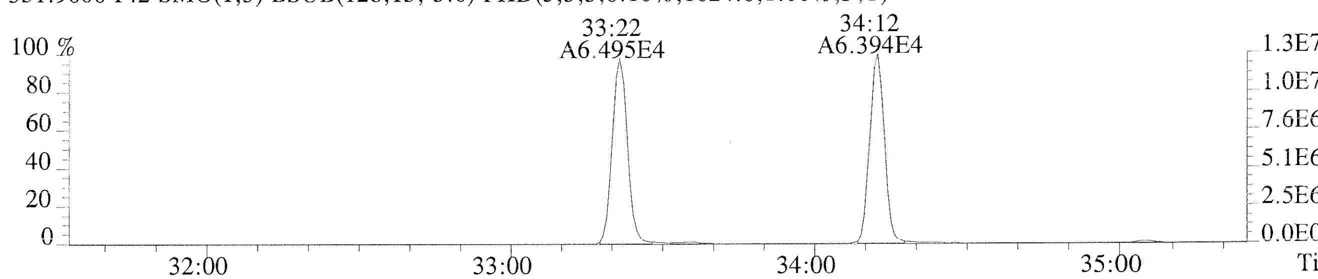
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



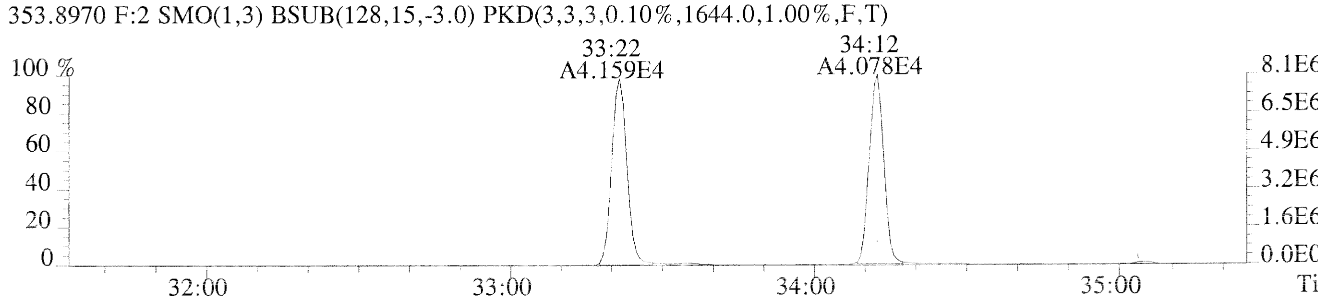
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



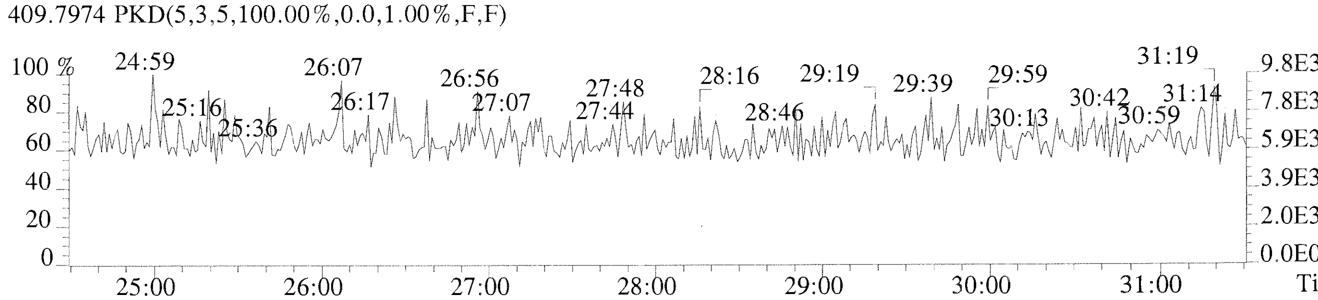
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



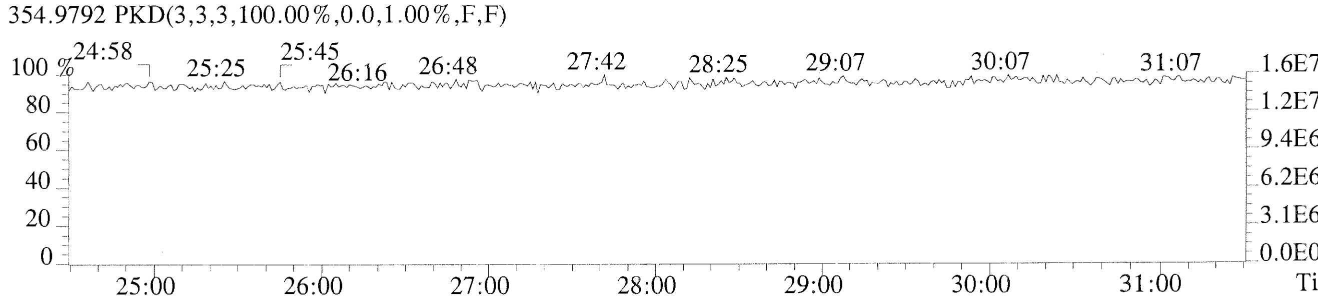
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

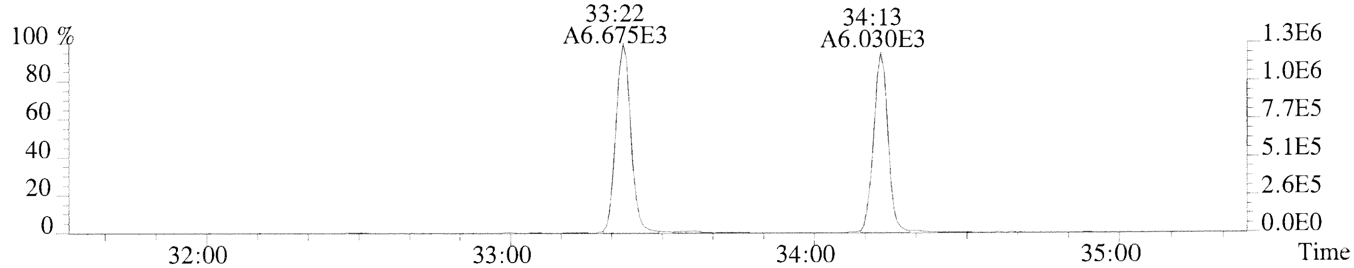


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

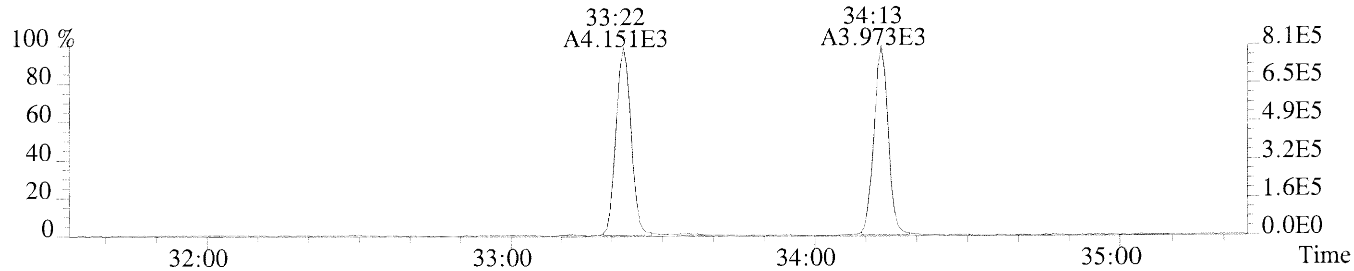


File:P169972 #1-351 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

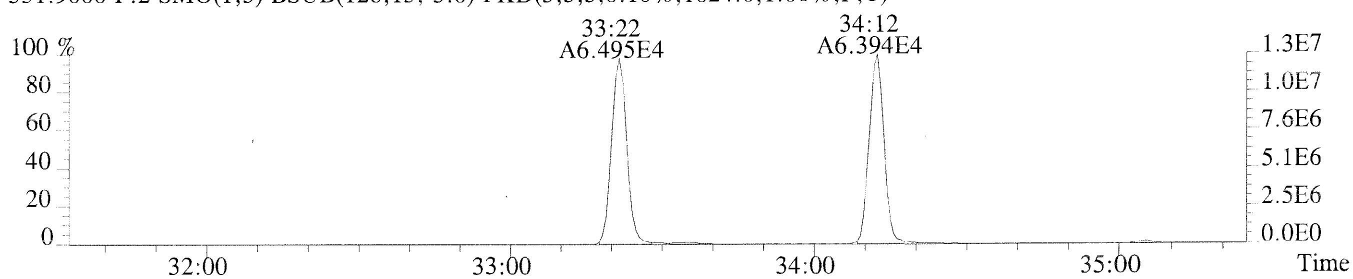
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



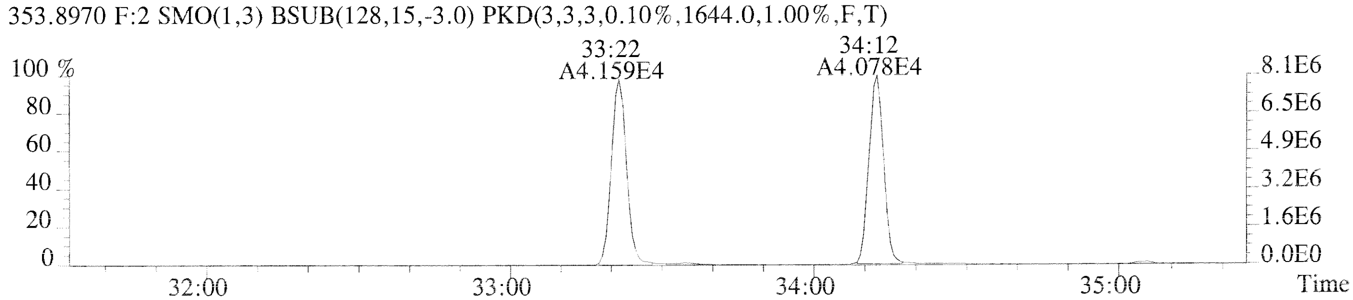
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



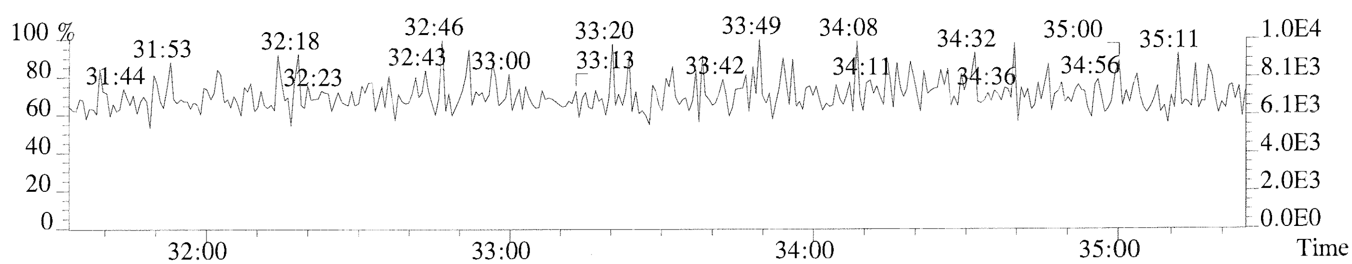
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



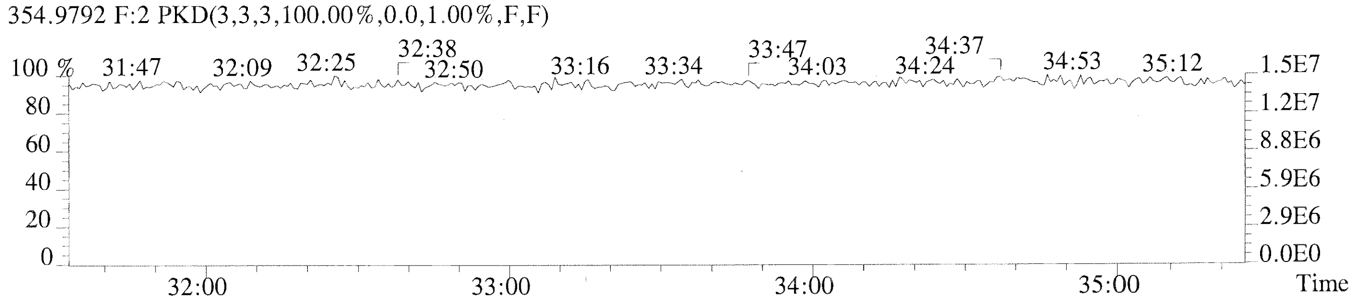
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

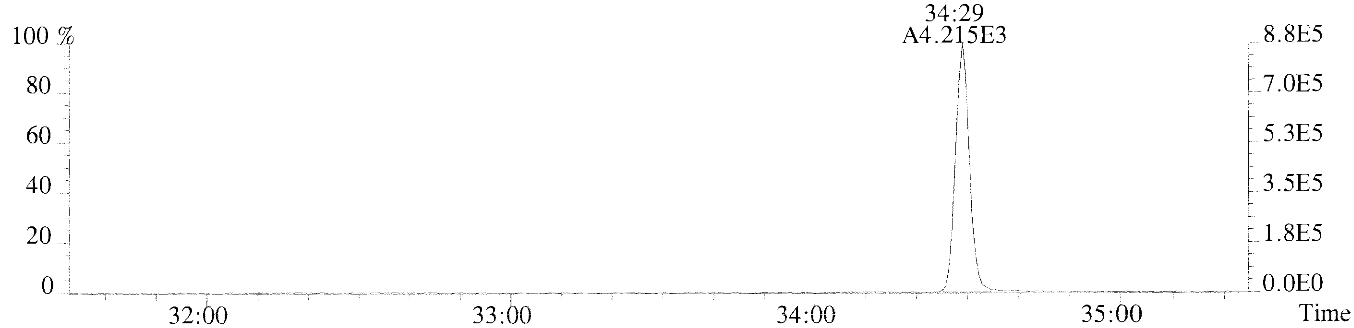


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

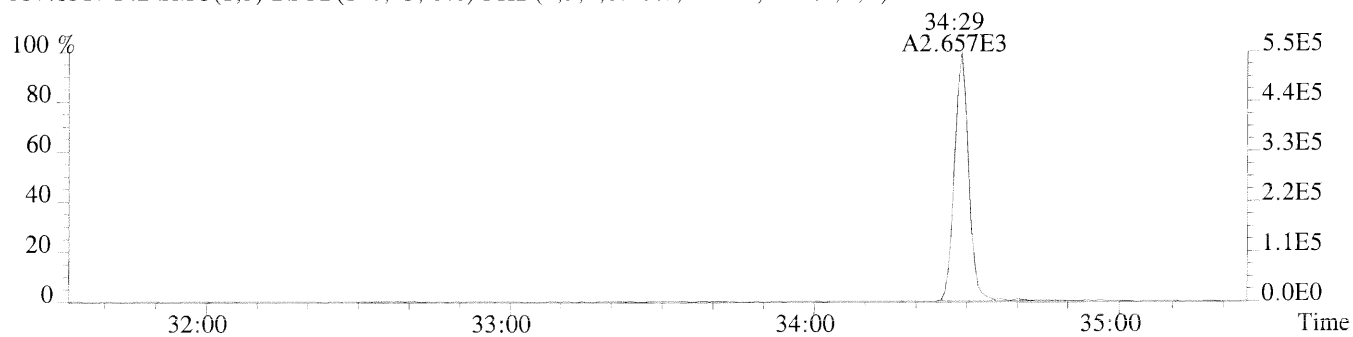


File:P169972 #1-351 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

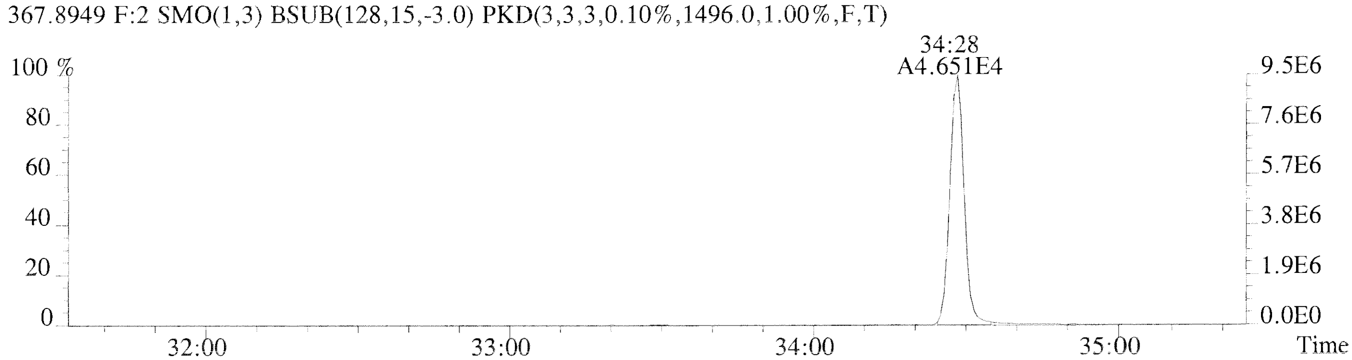
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



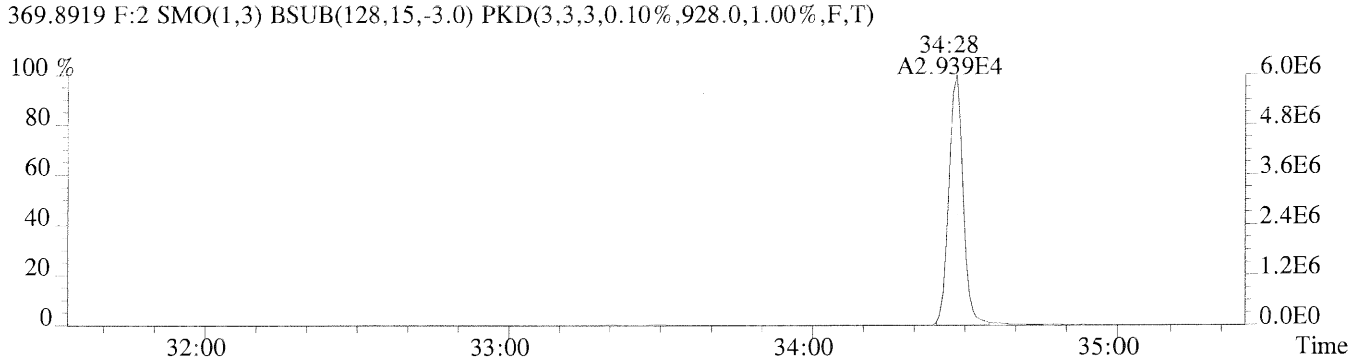
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



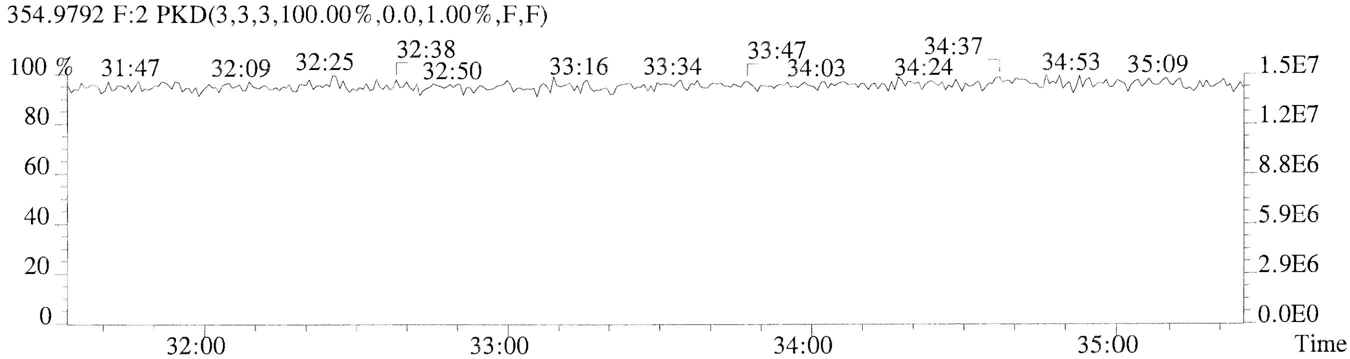
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)

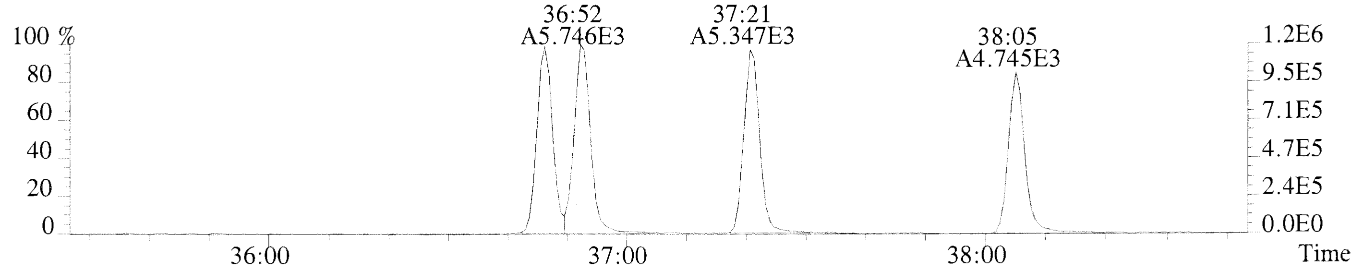


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

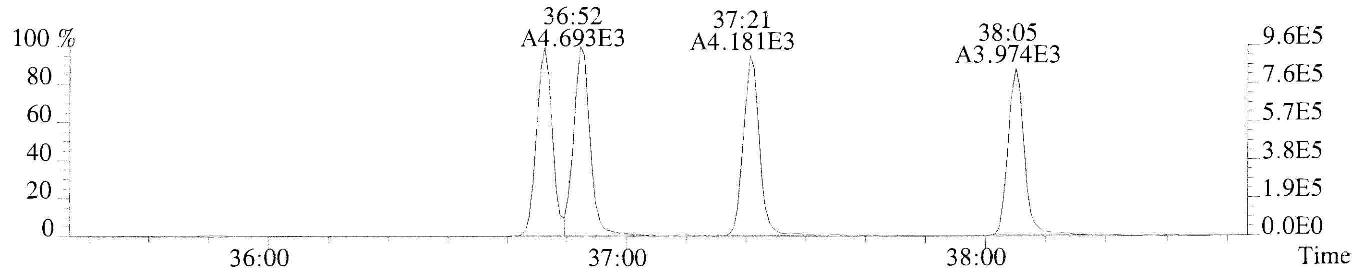


File:P169972 #1-298 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

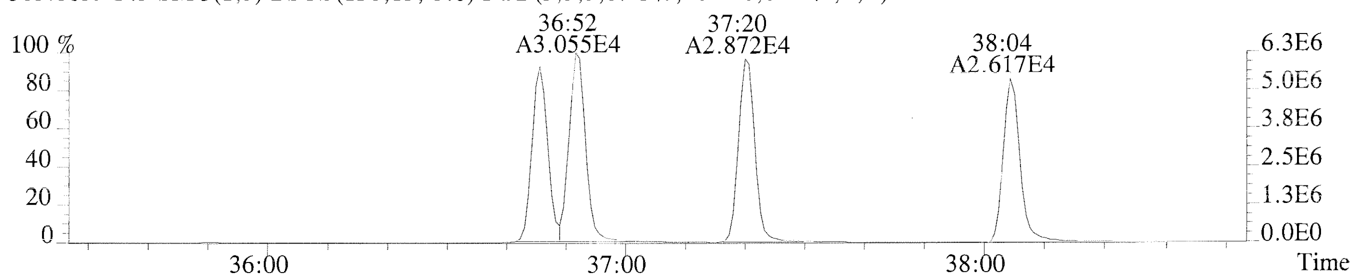
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



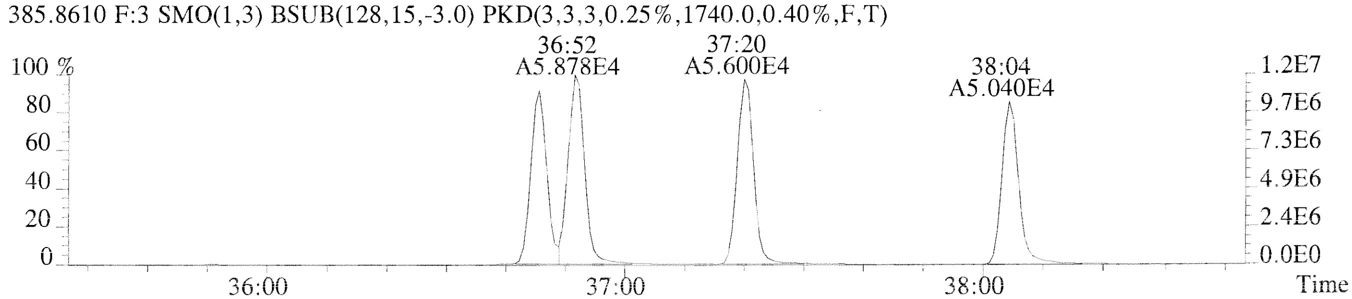
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



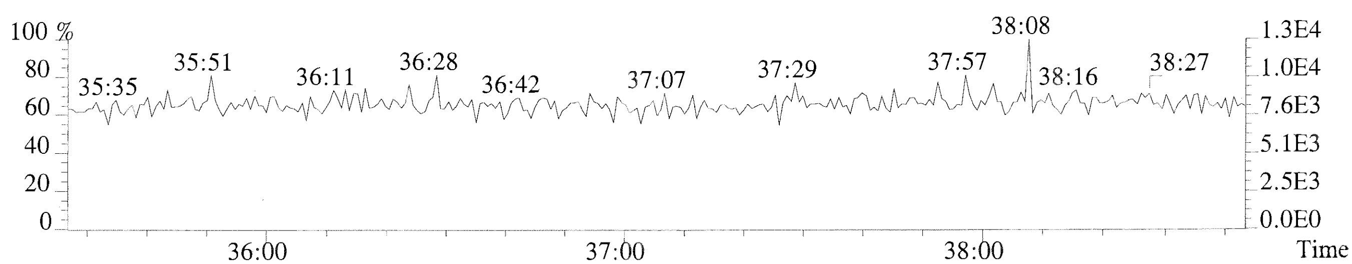
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



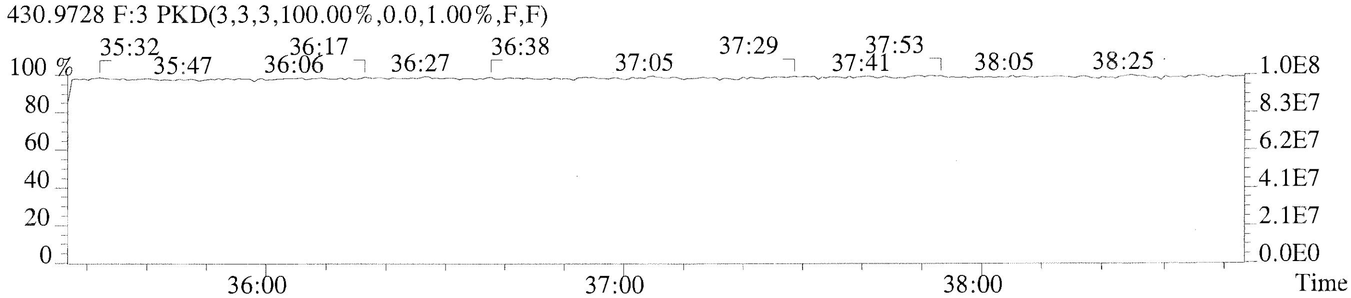
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

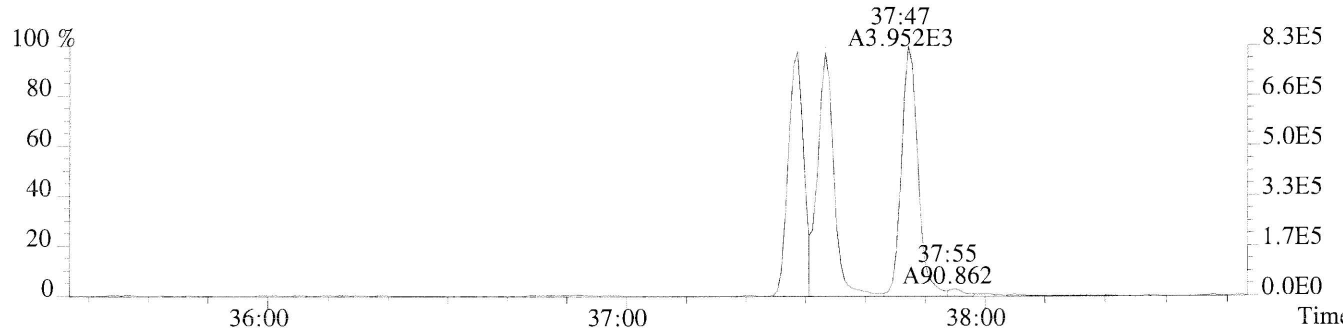


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

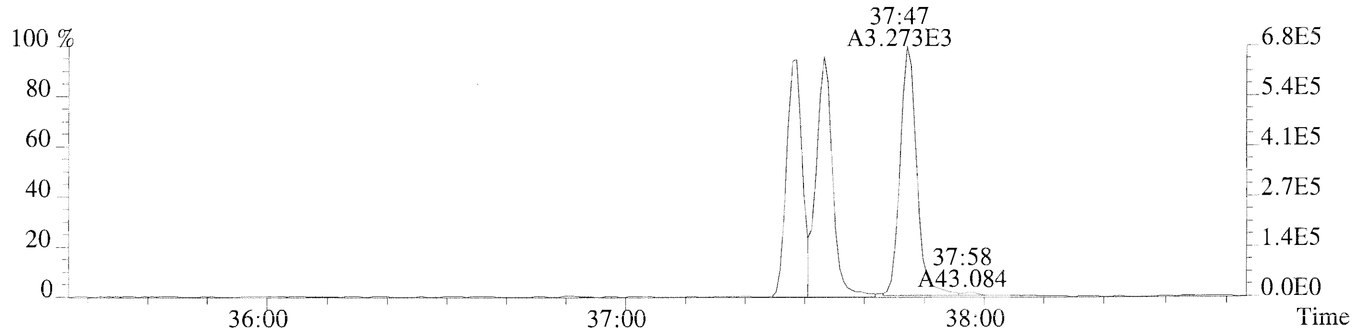


File:P169972 #1-298 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

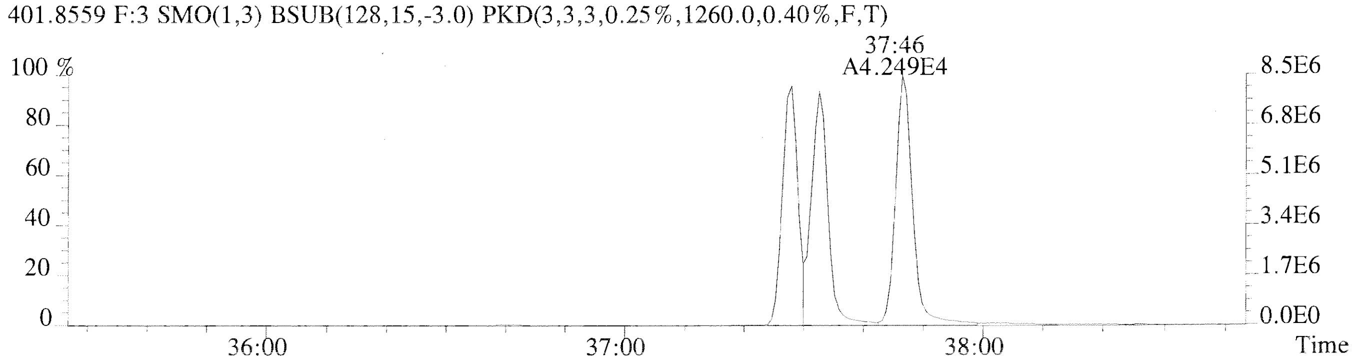
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



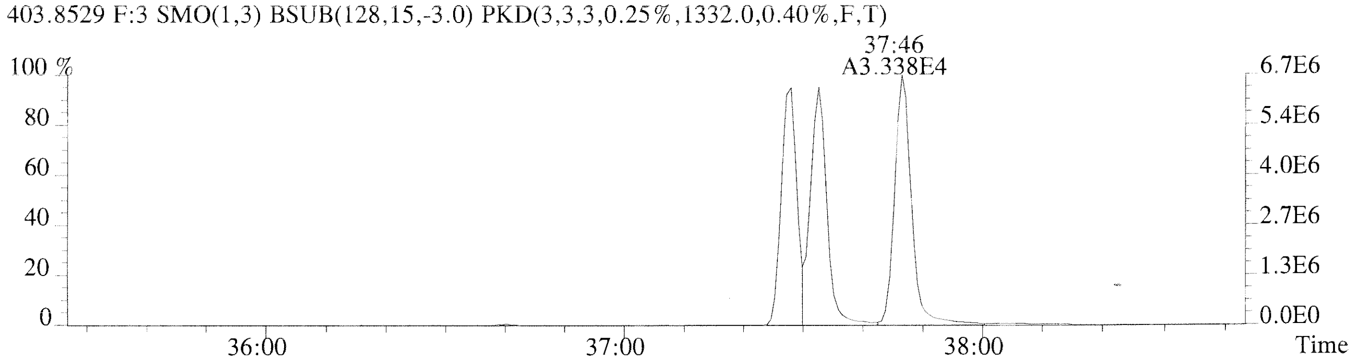
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



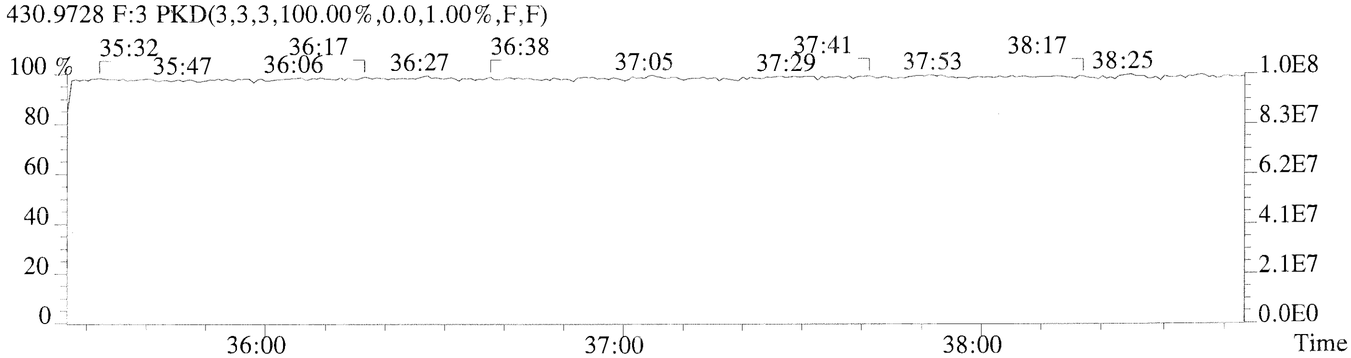
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



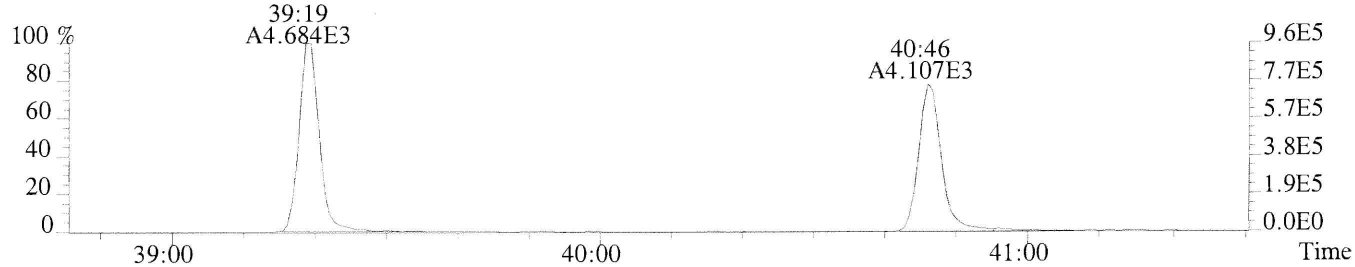
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



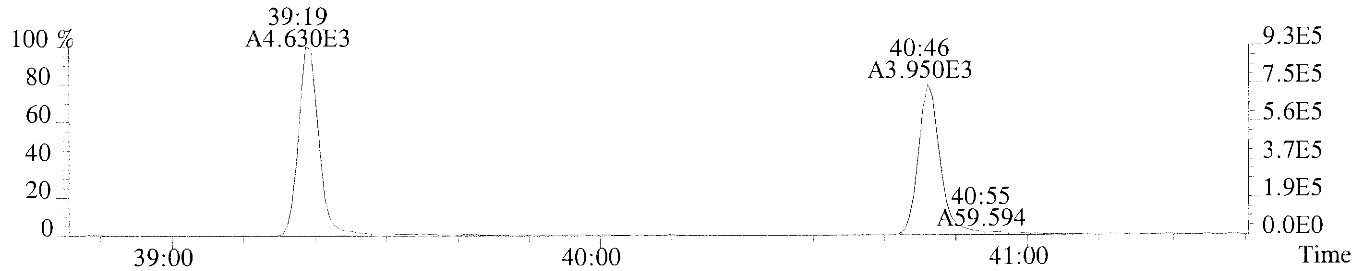
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



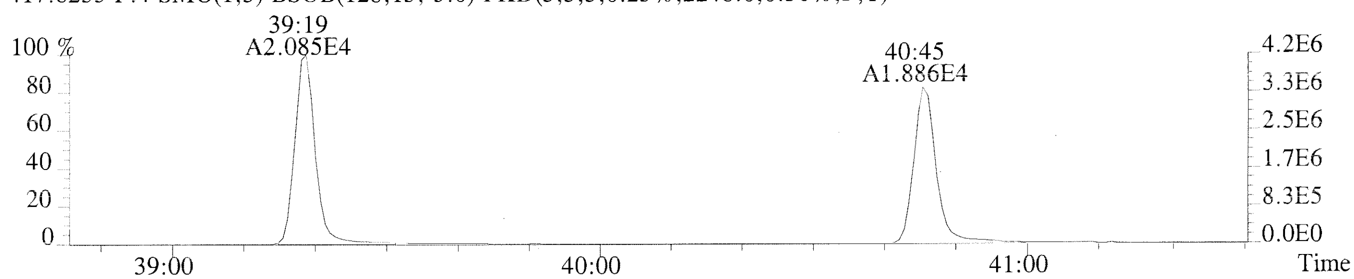
File:P169972 #1-250 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.50%,F,T)



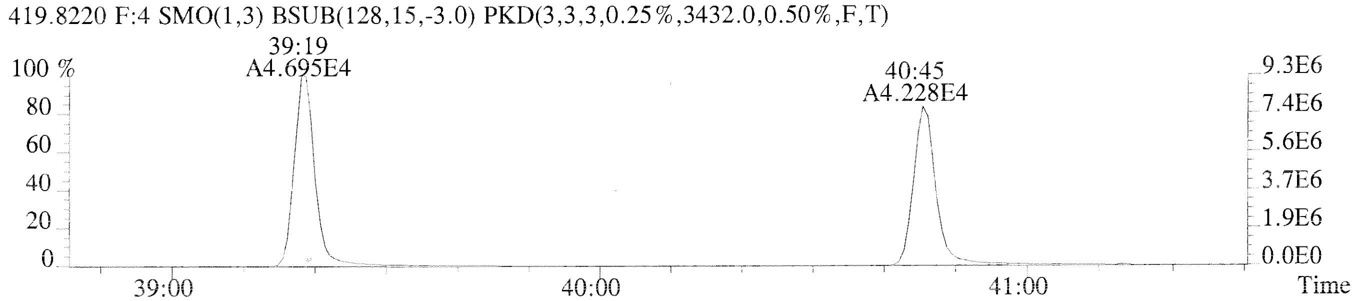
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



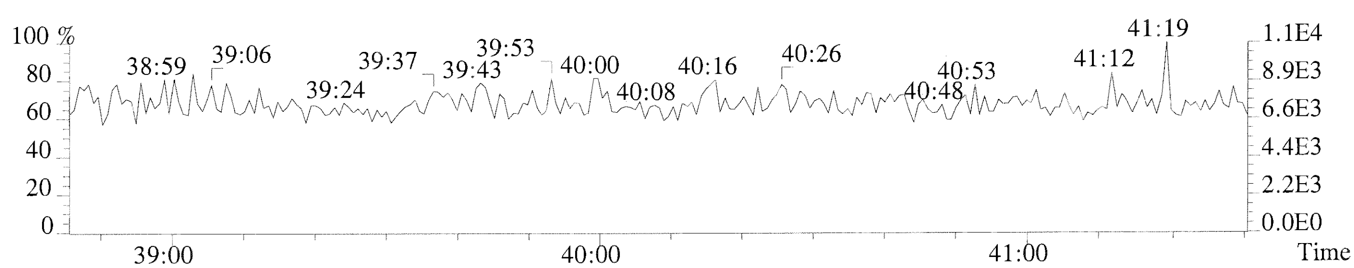
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2248.0,0.50%,F,T)



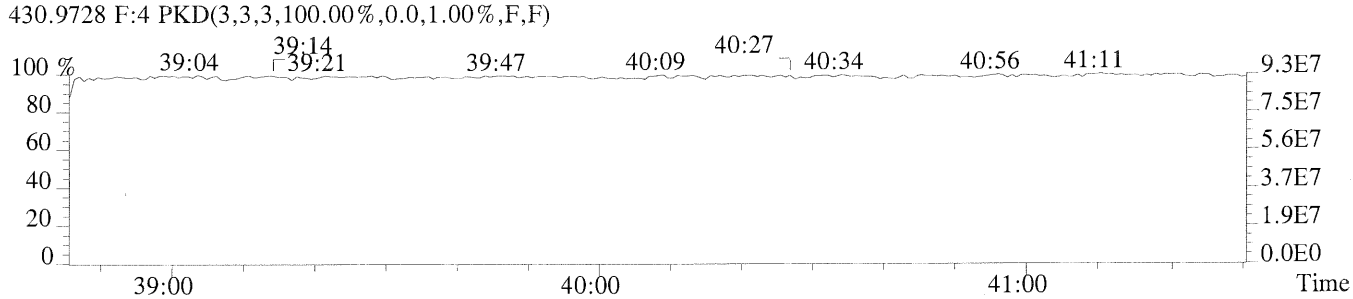
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

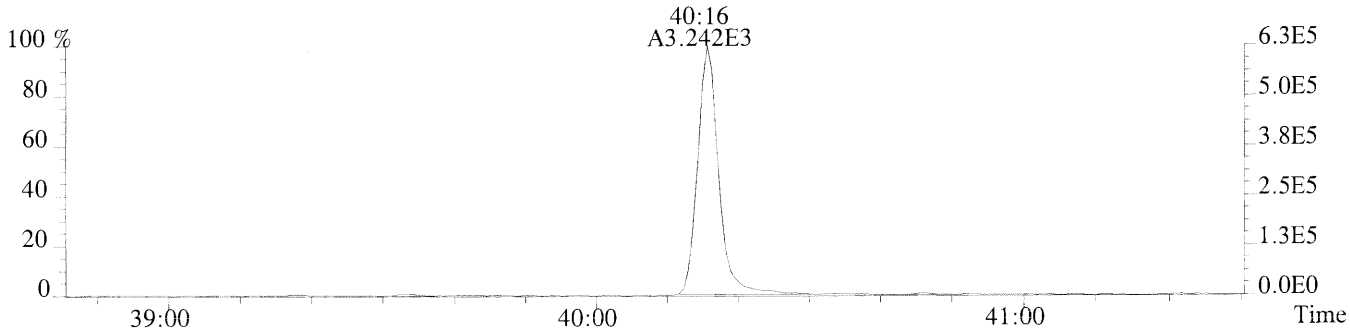


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

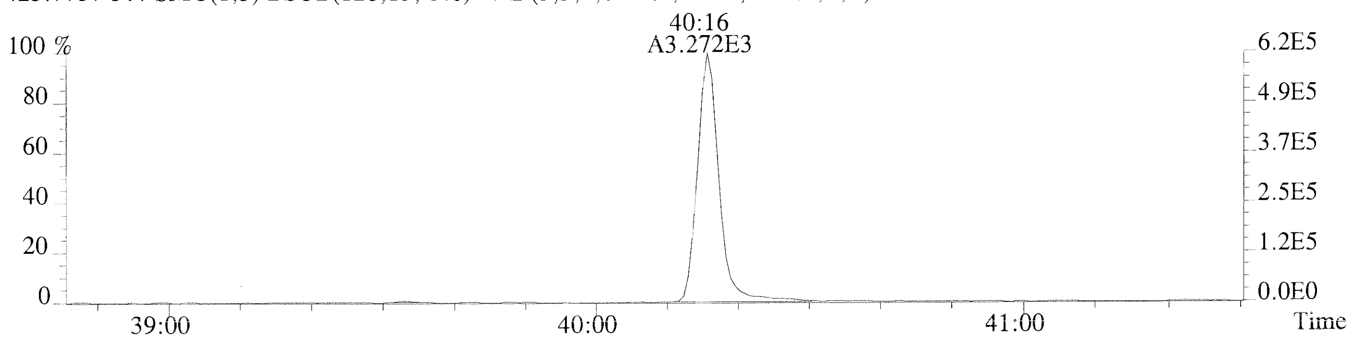


File:P169972 #1-250 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

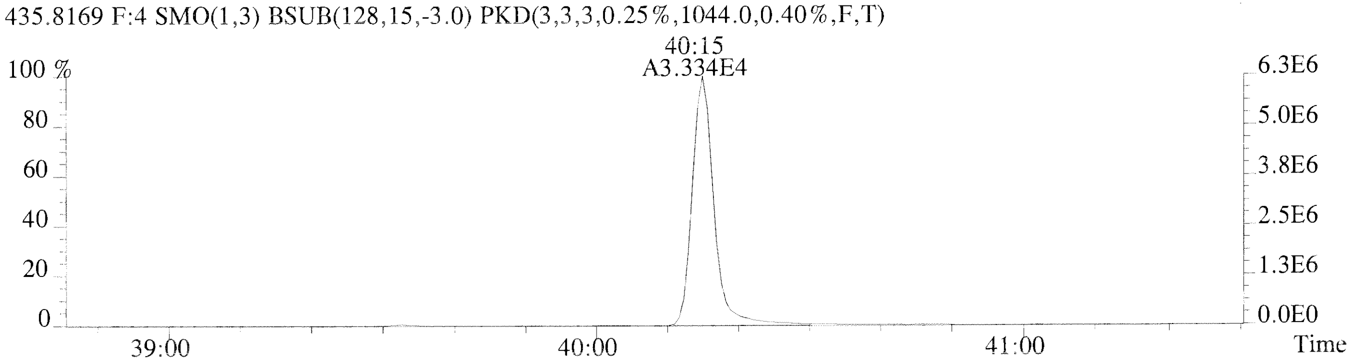
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



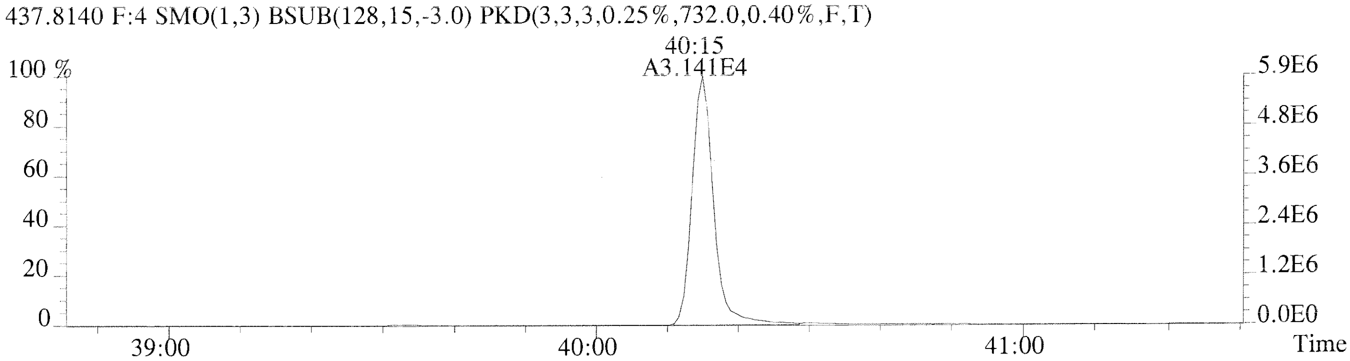
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



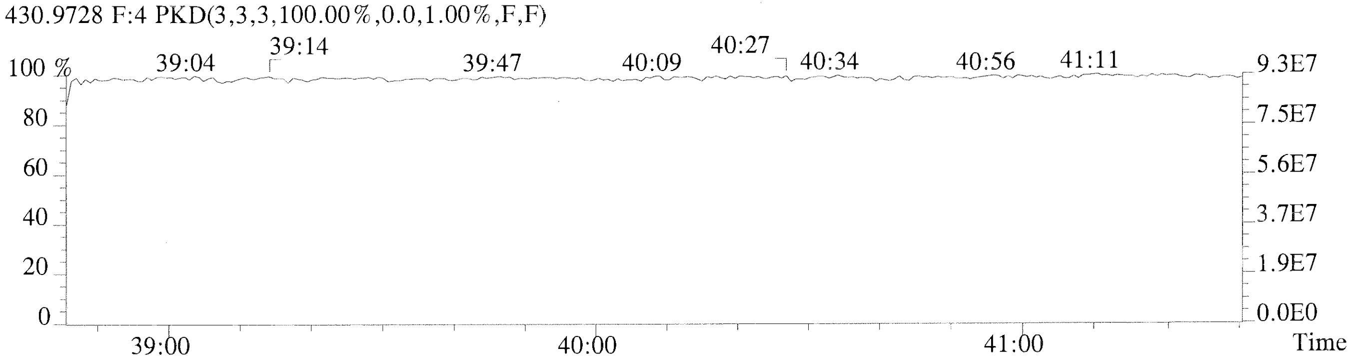
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

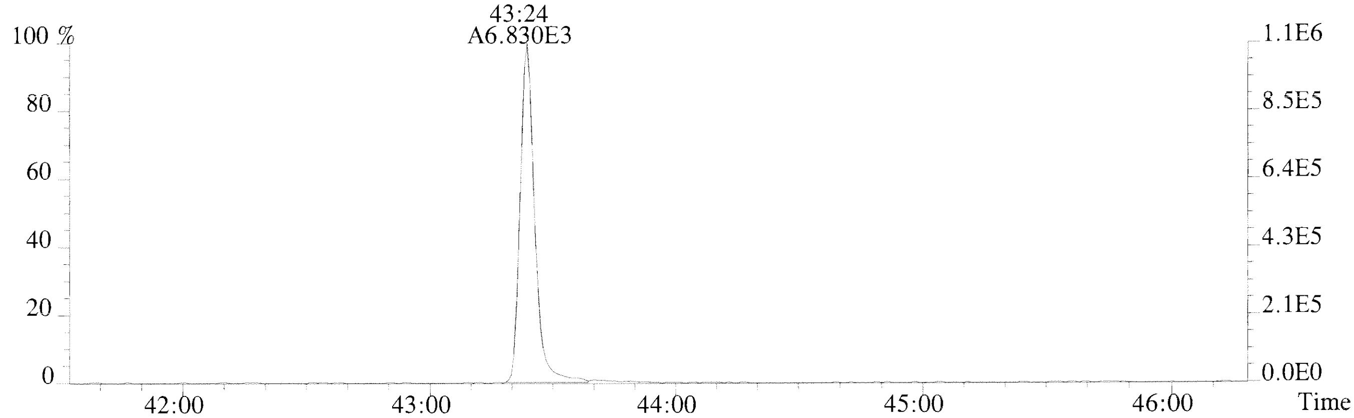


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

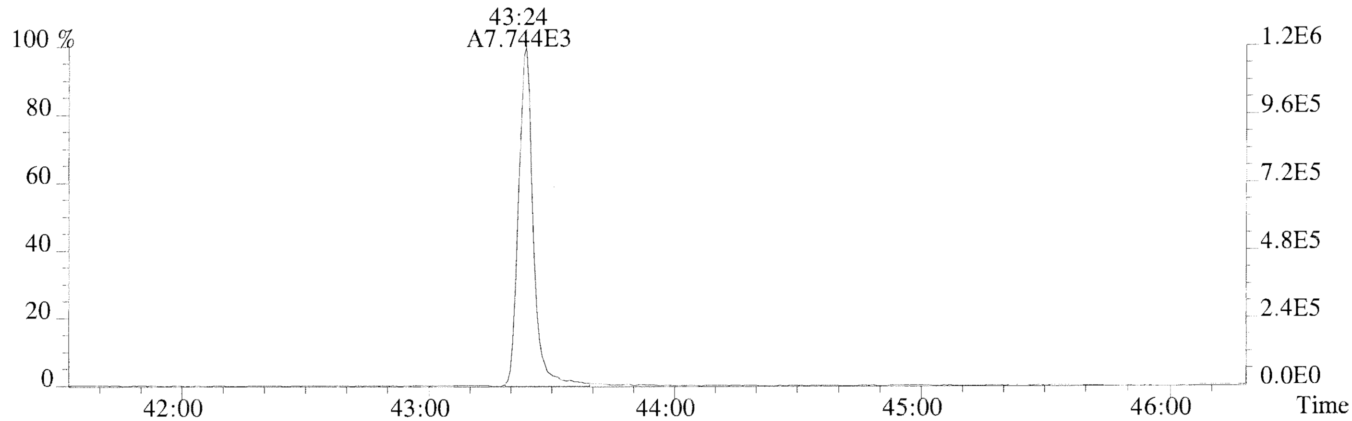


File:P169972 #1-438 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

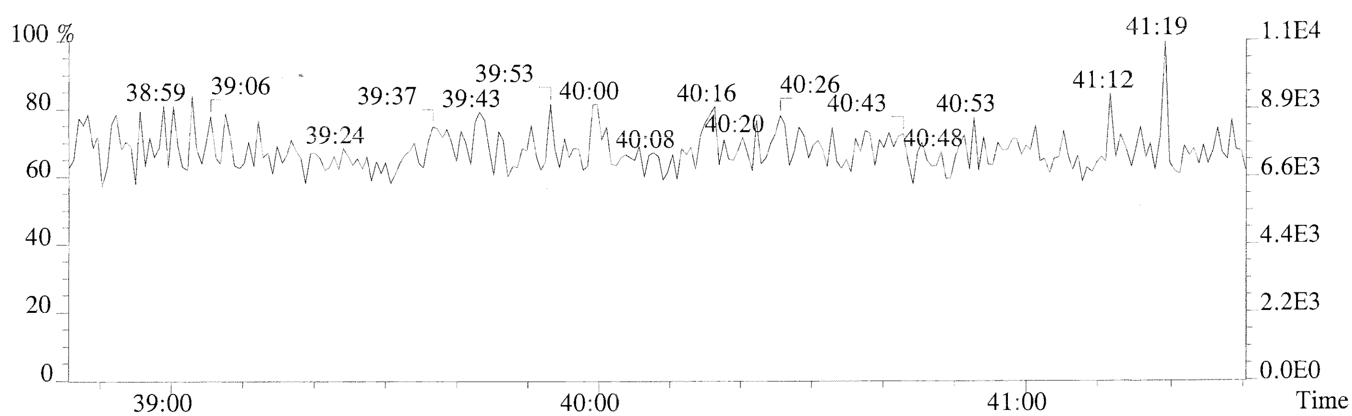
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



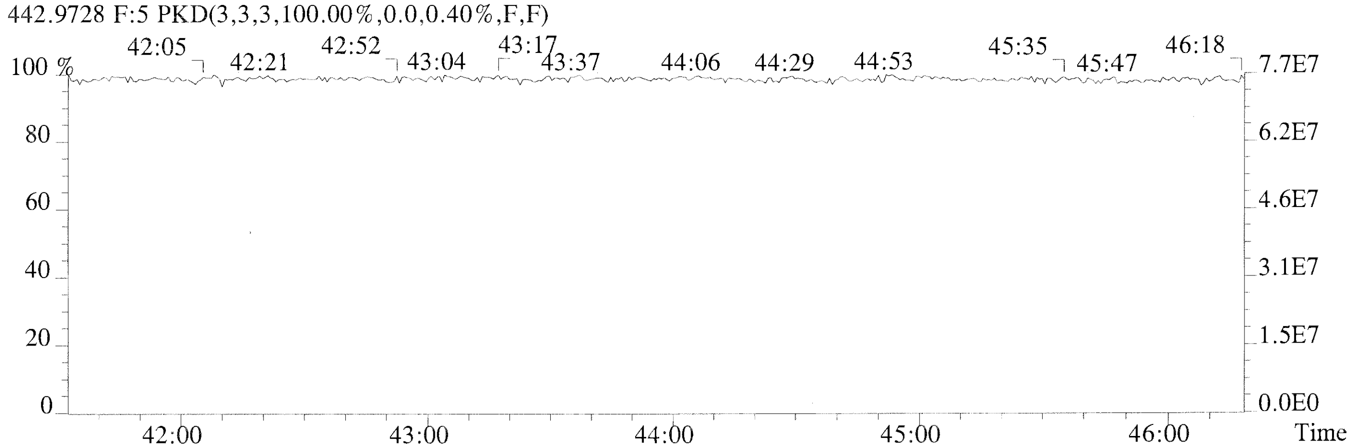
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1692.0,0.40%,F,T)



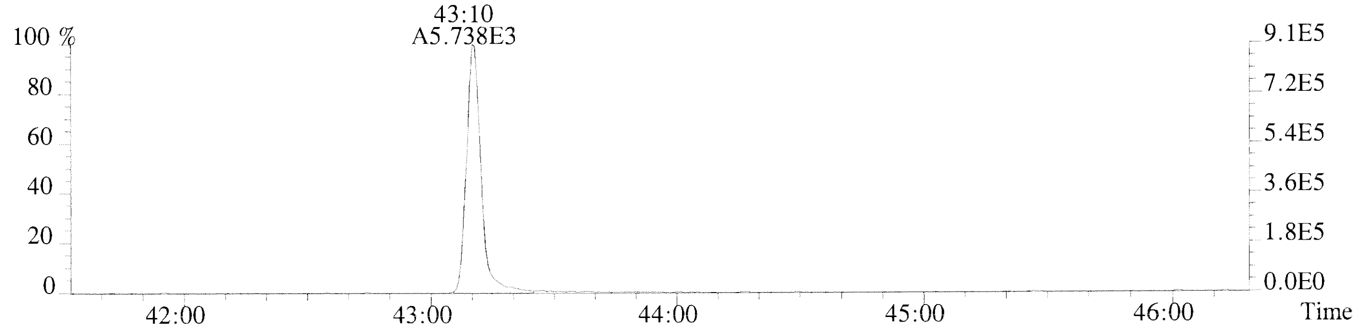
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



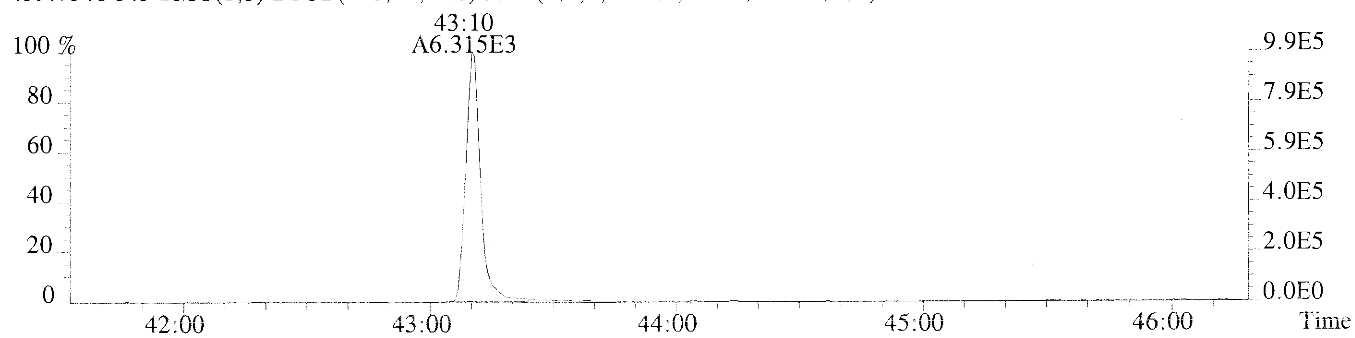
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



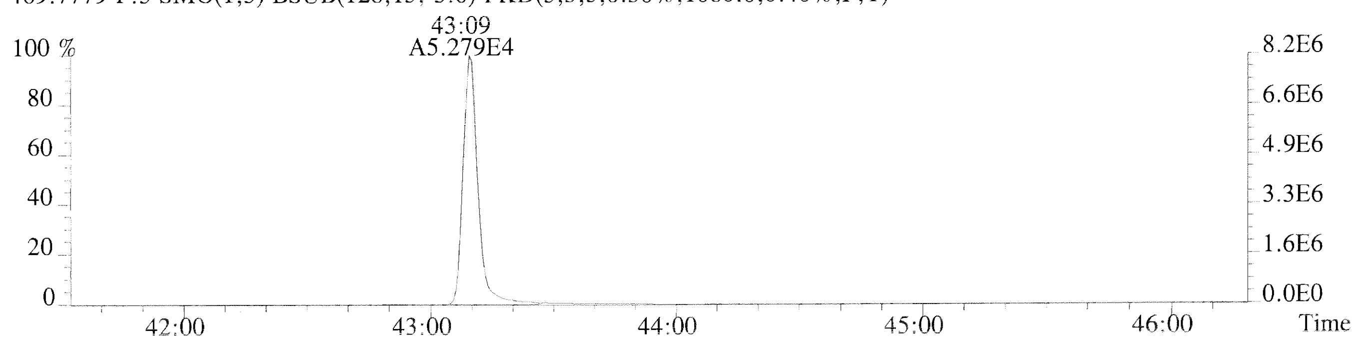
File:P169972 #1-438 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



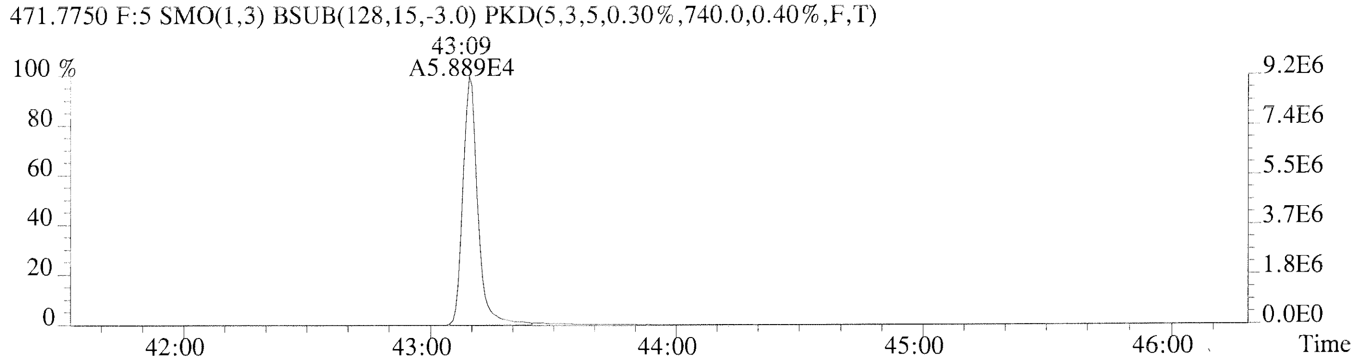
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



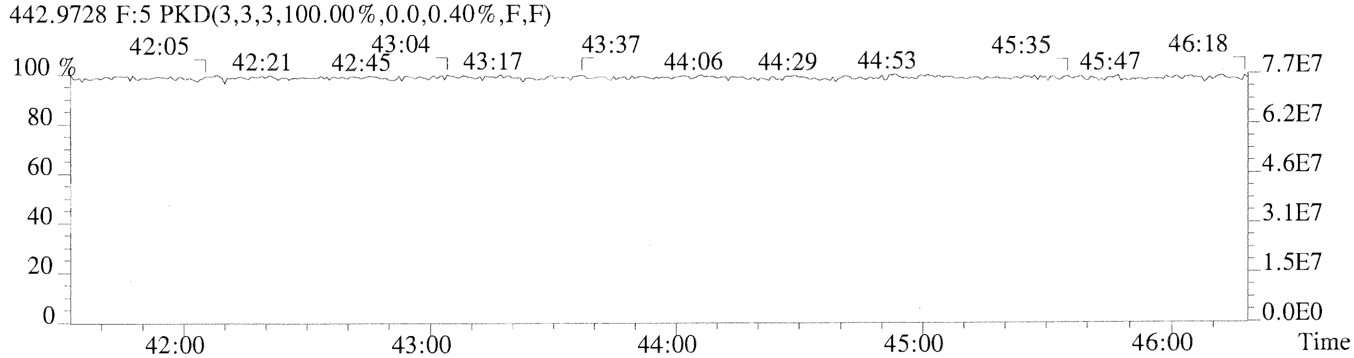
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
63383

Run #4 Filename P169973 Samp: 1 Inj: 1 Acquired: 25-MAR-14 19:46:25
Processed: 26-MAR-14 10:01:08 Sample ID: ICAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	4.466e+03	5.928e+03	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	4.454e+04	2.806e+04	1.59	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	4.060e+04	2.622e+04	1.55	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:47	3.600e+04	2.867e+04	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	3.885e+04	3.189e+04	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	3.550e+04	2.899e+04	1.22	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	3.295e+04	2.695e+04	1.22	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	3.278e+04	3.154e+04	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	2.769e+04	2.691e+04	1.03	yes	no	1.324
10	Unk	OCDF	43:24	4.694e+04	5.266e+04	0.89	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	3.554e+03	4.559e+03	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	2.837e+04	1.825e+04	1.55	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	2.386e+04	1.931e+04	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	2.616e+04	2.103e+04	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	2.680e+04	2.208e+04	1.21	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.267e+04	2.136e+04	1.06	yes	no	1.016
17	Unk	OCDD	43:11	3.869e+04	4.323e+04	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	5.017e+04	6.394e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	8.620e+04	5.480e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	8.411e+04	5.352e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.538e+04	6.735e+04	0.53	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	4.206e+04	7.939e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	3.836e+04	7.360e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	3.471e+04	6.786e+04	0.51	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.809e+04	6.282e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.528e+04	5.711e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	3.517e+04	4.470e+04	0.79	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:29	6.149e+04	3.860e+04	1.59	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	4.747e+04	3.745e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.313e+04	4.120e+04	1.29	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:16	4.414e+04	4.127e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:10	7.159e+04	7.954e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:41	3.582e+04	4.552e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	5.573e+04	4.463e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	8.444e+03				no	1.125

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

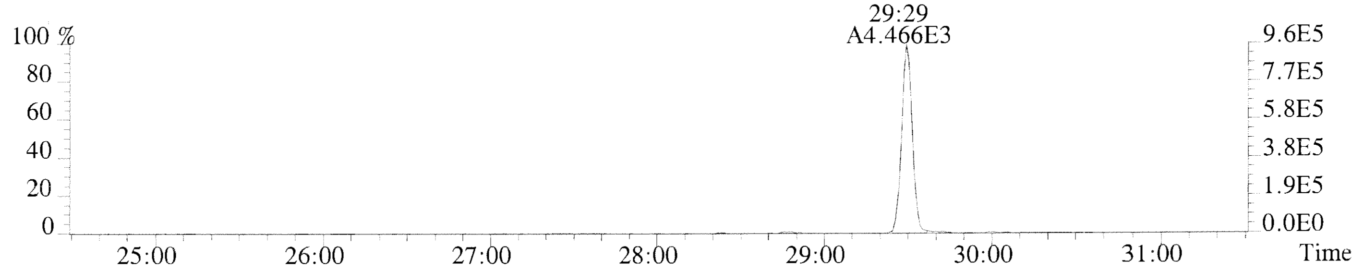
CLIENT ID.
63383

Run #4 Filename P169973 Samp: 1 Inj: 1 Acquired: 25-MAR-14 19:46:25
Processed: 26-MAR-14 08:20:101 LAB. ID: ICAL HRCC3/CS3

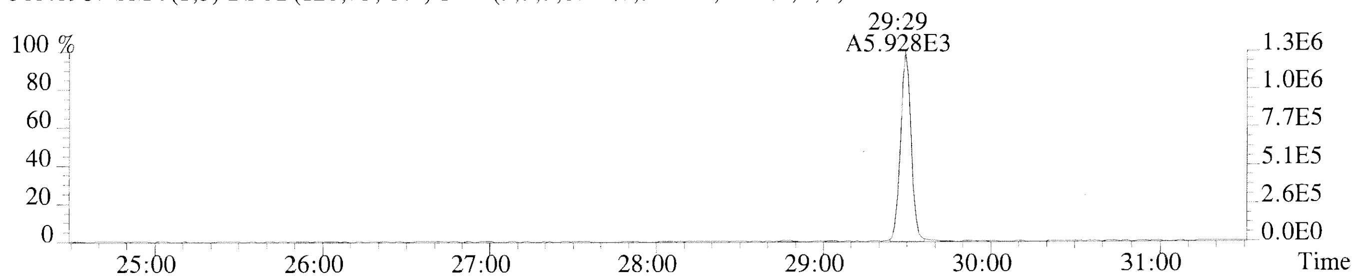
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.58e+05	6.96e+02	1.4e+03	1.28e+06	3.10e+03	4.1e+02
2	1,2,3,7,8-PeCDF	8.63e+06	9.72e+02	8.9e+03	5.44e+06	1.92e+03	2.8e+03
3	2,3,4,7,8-PeCDF	8.21e+06	9.72e+02	8.4e+03	5.33e+06	1.92e+03	2.8e+03
4	1,2,3,4,7,8-HxCDF	7.78e+06	1.23e+03	6.3e+03	6.10e+06	1.07e+03	5.7e+03
5	1,2,3,6,7,8-HxCDF	7.80e+06	1.23e+03	6.3e+03	6.46e+06	1.07e+03	6.0e+03
6	2,3,4,6,7,8-HxCDF	7.54e+06	1.23e+03	6.1e+03	6.19e+06	1.07e+03	5.8e+03
7	1,2,3,7,8,9-HxCDF	6.72e+06	1.23e+03	5.5e+03	5.52e+06	1.07e+03	5.1e+03
8	1,2,3,4,6,7,8-HpCDF	6.42e+06	3.31e+03	1.9e+03	6.30e+06	3.43e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	4.95e+06	3.31e+03	1.5e+03	4.80e+06	3.43e+03	1.4e+03
10	OCDF	7.28e+06	1.19e+03	6.1e+03	7.90e+06	1.71e+03	4.6e+03
11	2,3,7,8-TCDD	8.22e+05	1.05e+03	7.8e+02	1.05e+06	1.30e+03	8.1e+02
12	1,2,3,7,8-PeCDD	5.67e+06	1.51e+03	3.8e+03	3.65e+06	6.08e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	5.39e+06	1.35e+03	4.0e+03	4.26e+06	1.50e+03	2.8e+03
14	1,2,3,6,7,8-HxCDD	5.33e+06	1.35e+03	4.0e+03	4.23e+06	1.50e+03	2.8e+03
15	1,2,3,7,8,9-HxCDD	5.38e+06	1.35e+03	4.0e+03	4.43e+06	1.50e+03	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	4.29e+06	1.05e+03	4.1e+03	4.00e+06	8.12e+02	4.9e+03
17	OCDD	6.18e+06	6.52e+02	9.5e+03	6.87e+06	8.92e+02	7.7e+03
18	13C-2,3,7,8-TCDF	1.09e+07	2.00e+03	5.4e+03	1.39e+07	1.75e+03	7.9e+03
19	13C-1,2,3,7,8-PeCDF	1.63e+07	1.00e+03	1.6e+04	1.04e+07	1.24e+03	8.4e+03
20	13C-2,3,4,7,8-PeCDF	1.69e+07	1.00e+03	1.7e+04	1.07e+07	1.24e+03	8.6e+03
21	13C-1,2,3,4,7,8-HxCDF	7.60e+06	1.03e+03	7.4e+03	1.44e+07	1.80e+03	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.55e+06	1.03e+03	8.3e+03	1.62e+07	1.80e+03	9.0e+03
23	13C-2,3,4,6,7,8-HxCDF	7.96e+06	1.03e+03	7.7e+03	1.55e+07	1.80e+03	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	7.01e+06	1.03e+03	6.8e+03	1.38e+07	1.80e+03	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.46e+06	3.52e+03	1.6e+03	1.23e+07	3.85e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.47e+06	3.52e+03	1.3e+03	1.03e+07	3.85e+03	2.7e+03
27	13C-2,3,7,8-TCDD	7.98e+06	5.24e+03	1.5e+03	1.01e+07	2.82e+03	3.6e+03
28	13C-1,2,3,7,8-PeCDD	1.22e+07	1.42e+03	8.6e+03	7.62e+06	7.64e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.07e+07	2.02e+03	5.3e+03	8.24e+06	1.43e+03	5.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	2.02e+03	5.2e+03	8.19e+06	1.43e+03	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.11e+06	1.60e+03	5.1e+03	7.67e+06	8.72e+02	8.8e+03
32	13C-OCDD	1.12e+07	1.10e+03	1.0e+04	1.27e+07	9.48e+02	1.3e+04
33	13C-1,2,3,4-TCDD	7.91e+06	5.24e+03	1.5e+03	9.90e+06	2.82e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	2.02e+03	5.4e+03	8.87e+06	1.43e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	1.95e+06	1.38e+03	1.4e+03			

File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

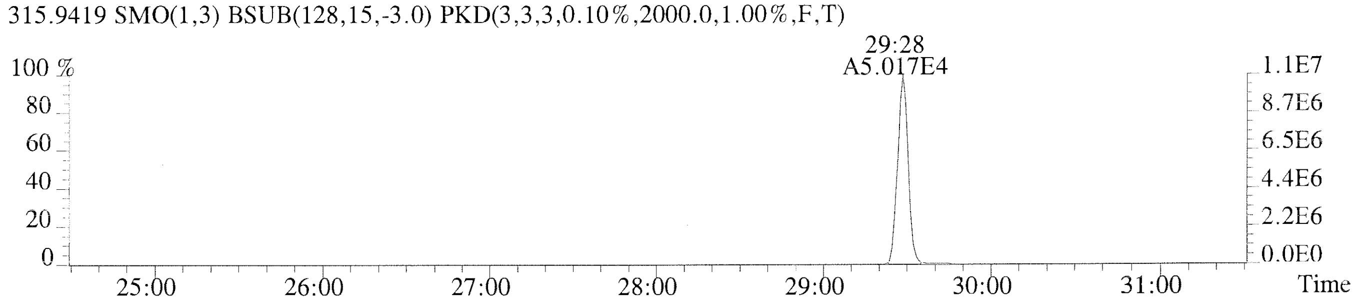
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



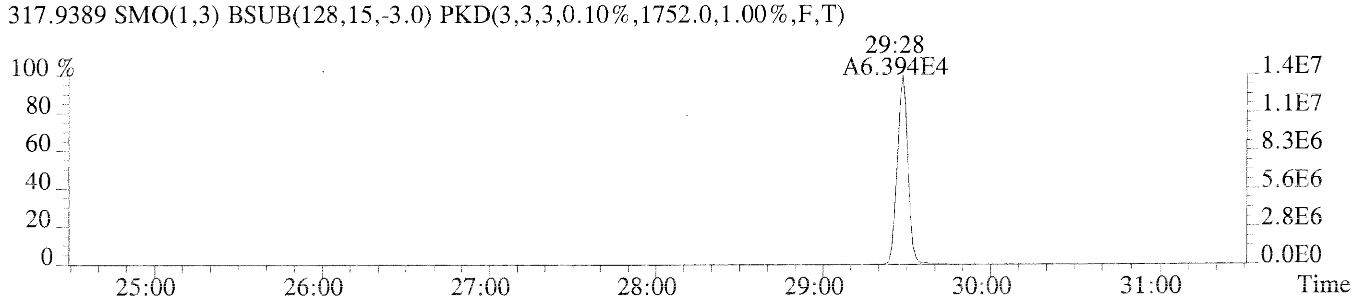
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



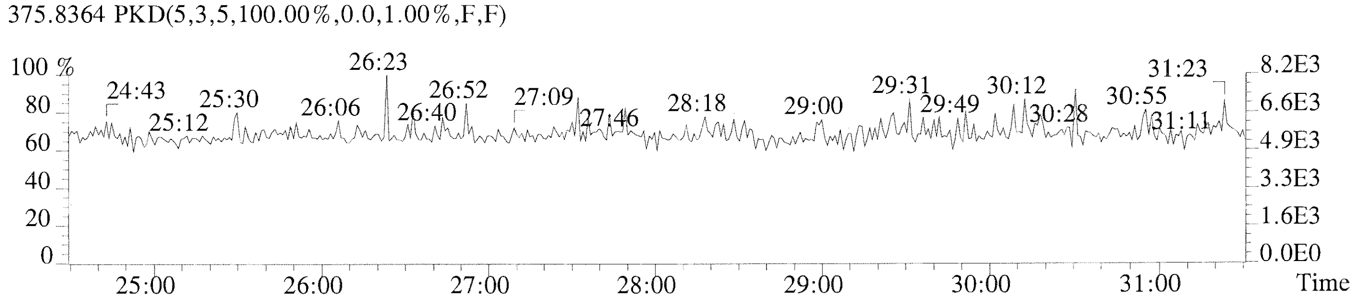
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



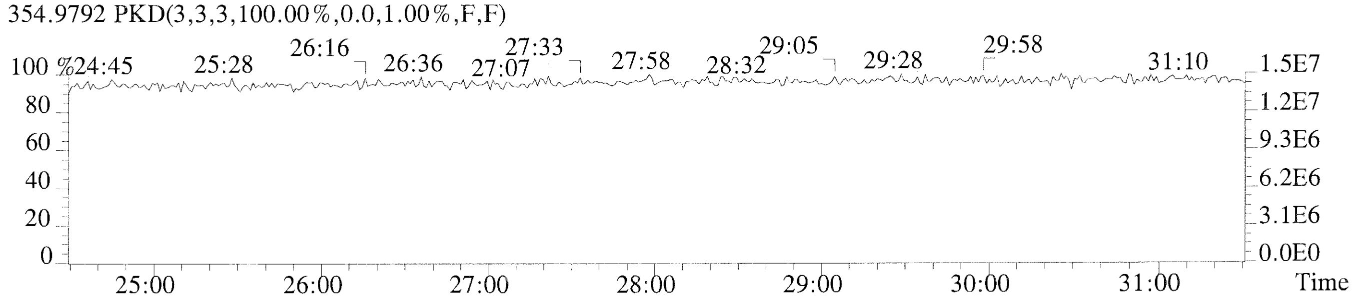
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



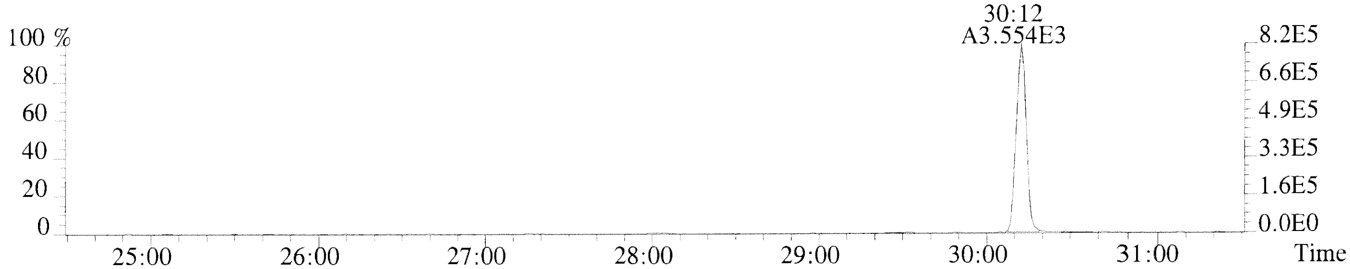
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



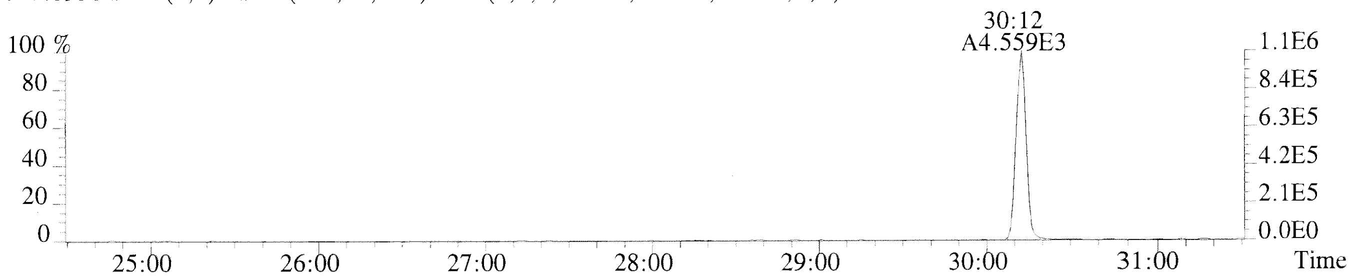
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



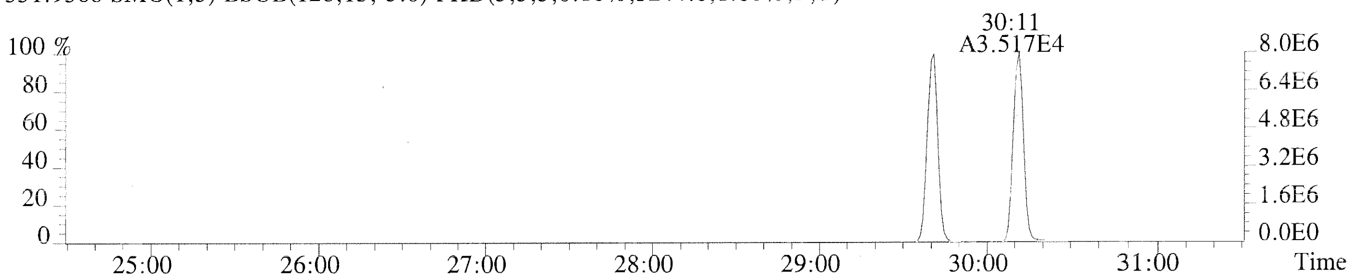
File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



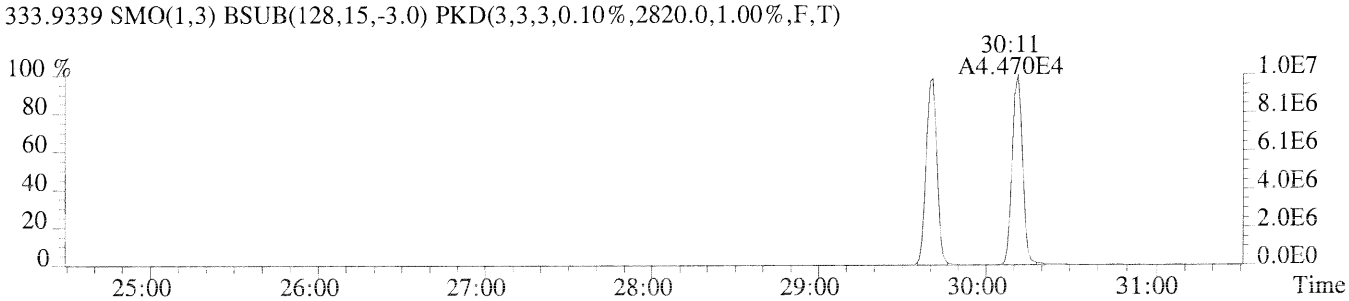
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



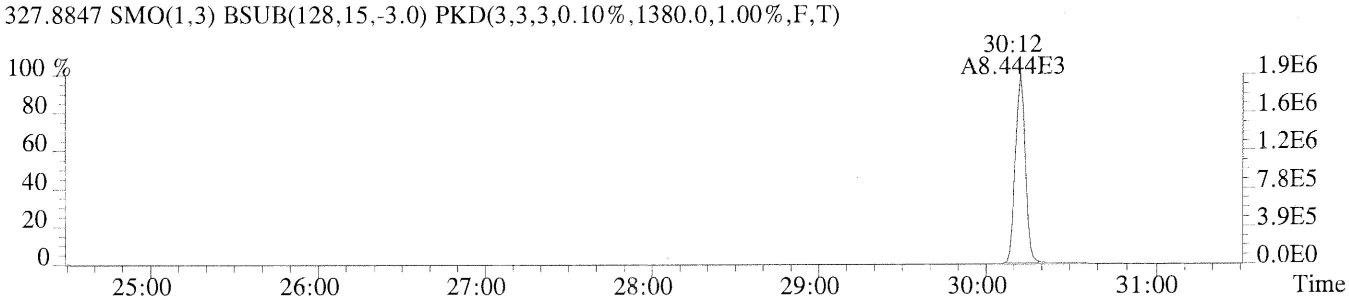
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5244.0,1.00%,F,T)



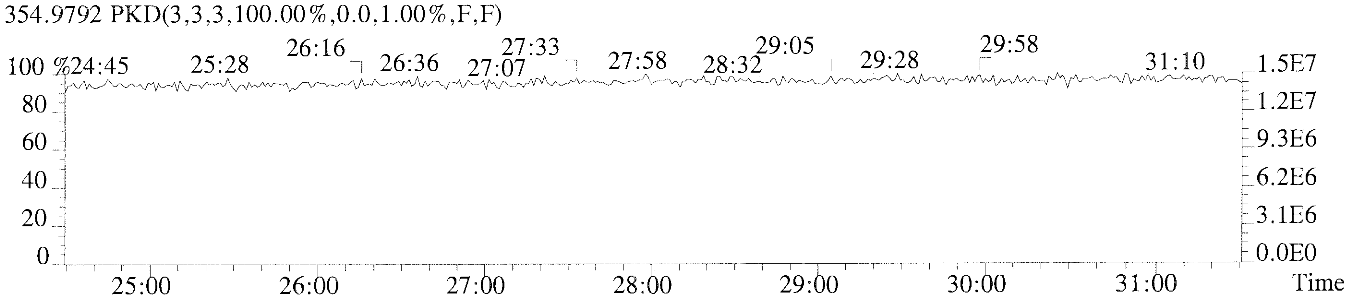
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)

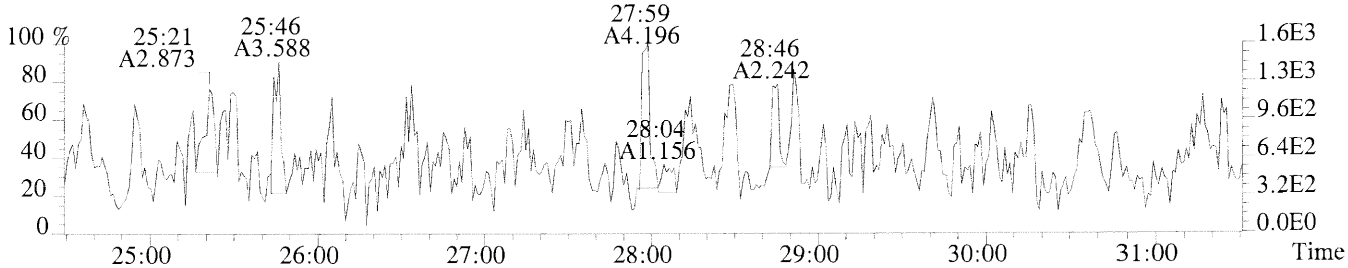


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

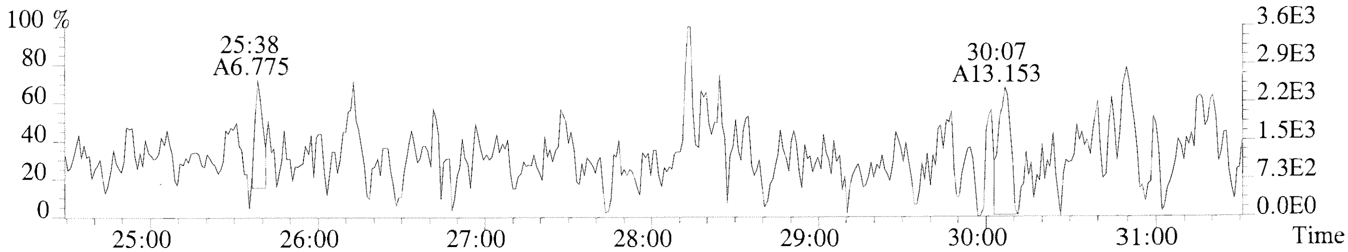


File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

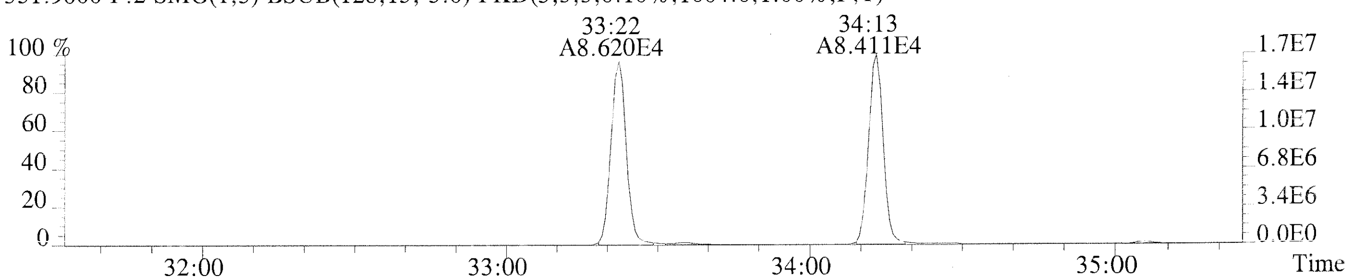
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



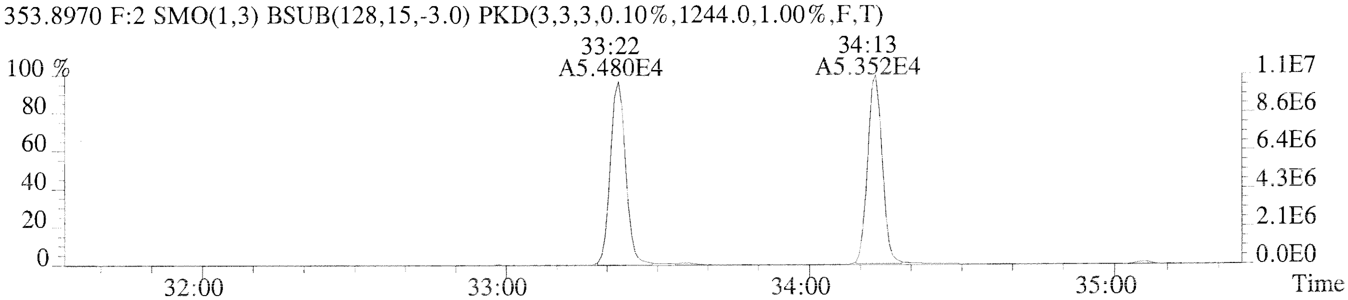
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



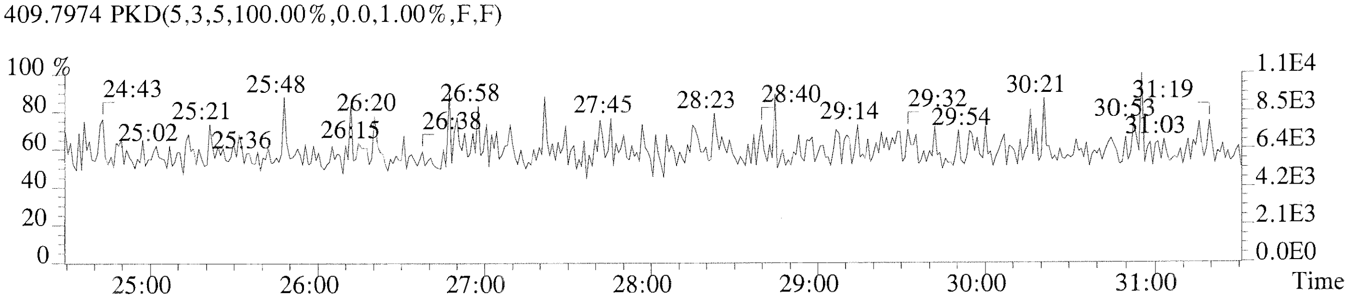
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



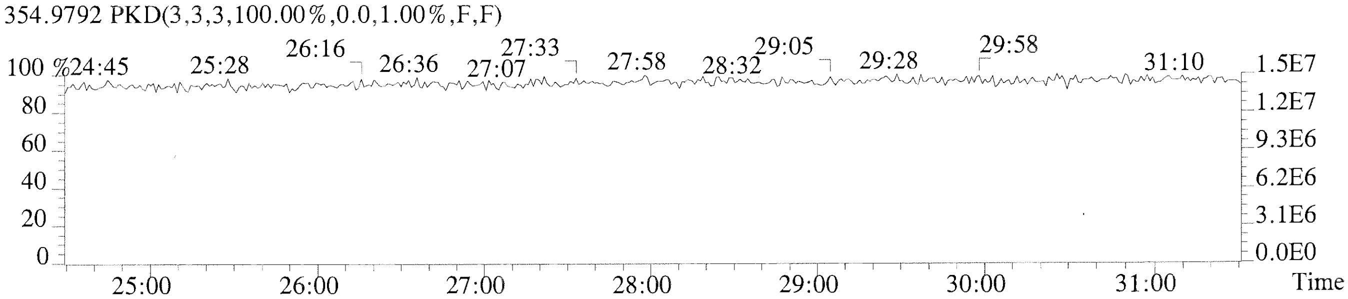
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

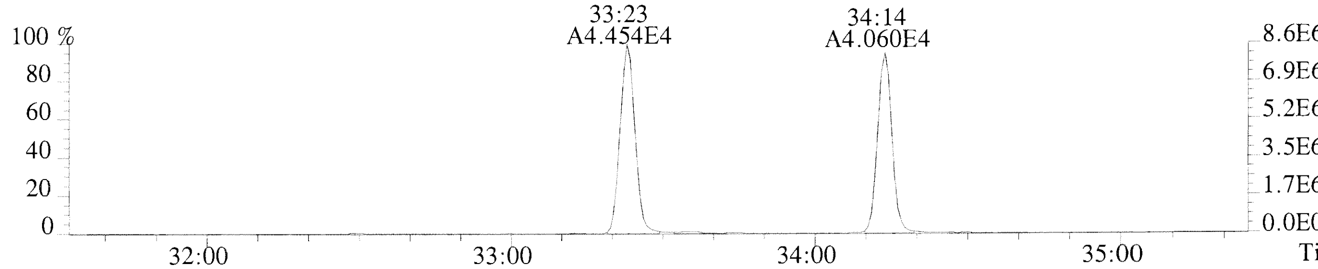


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

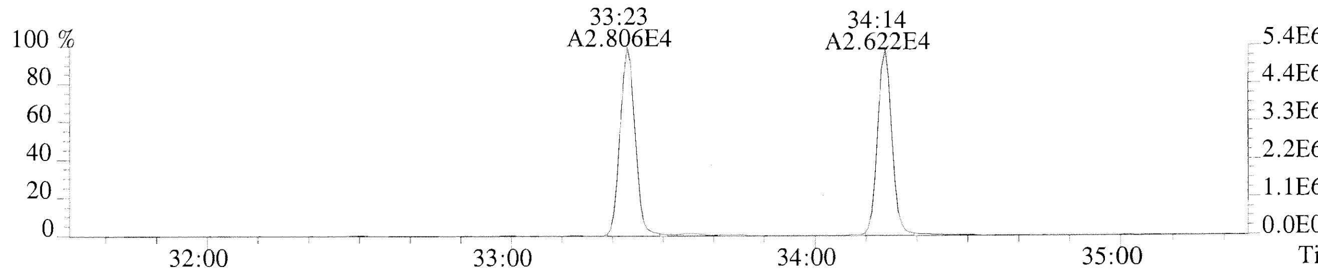


File:P169973 #1-351 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

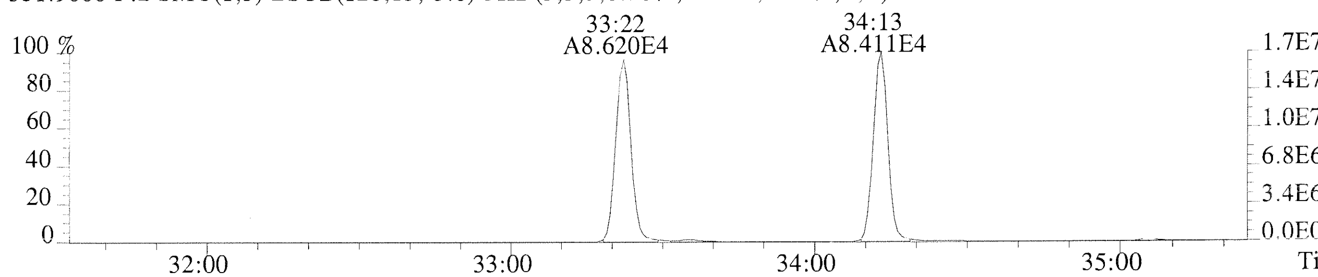
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



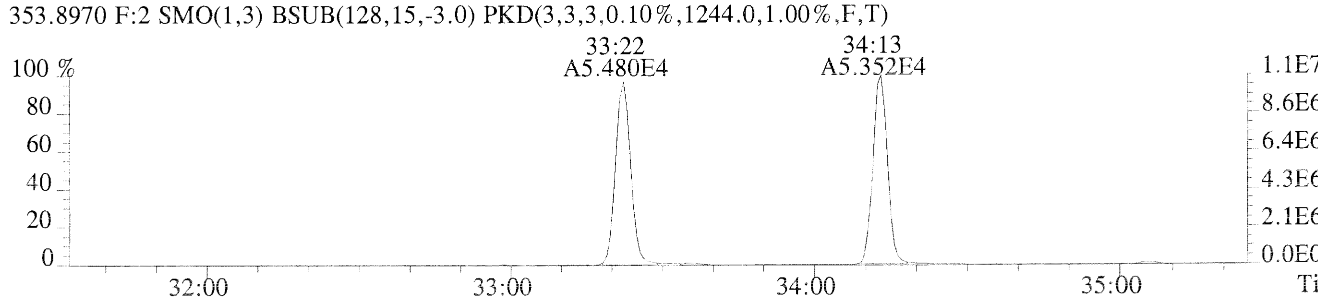
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



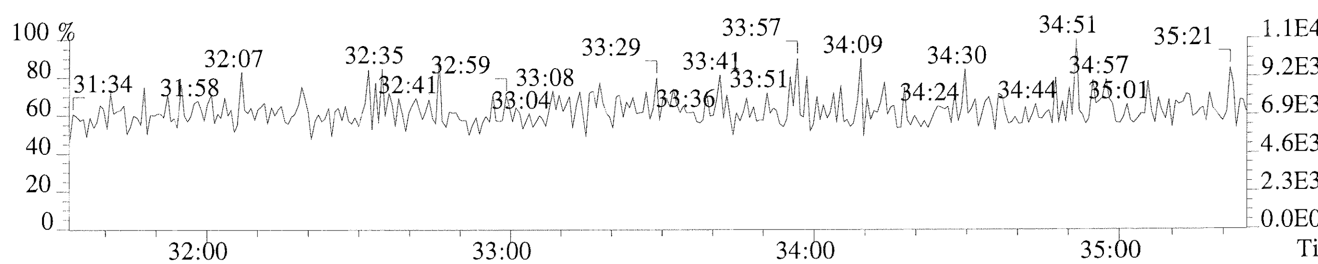
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



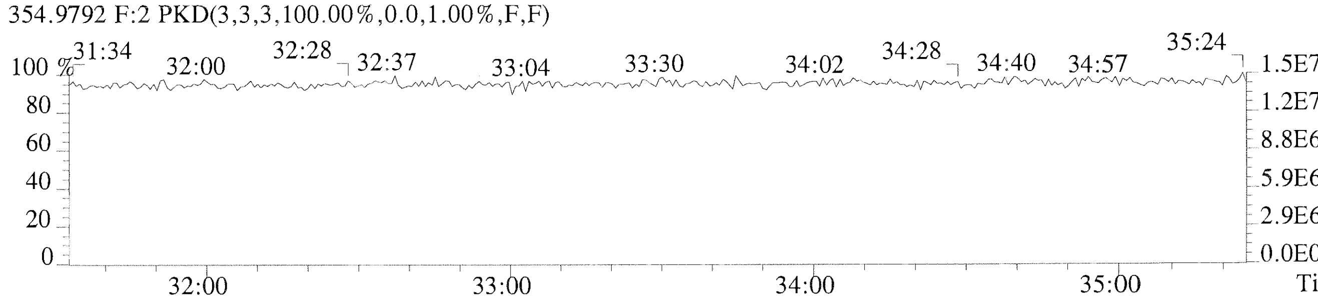
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



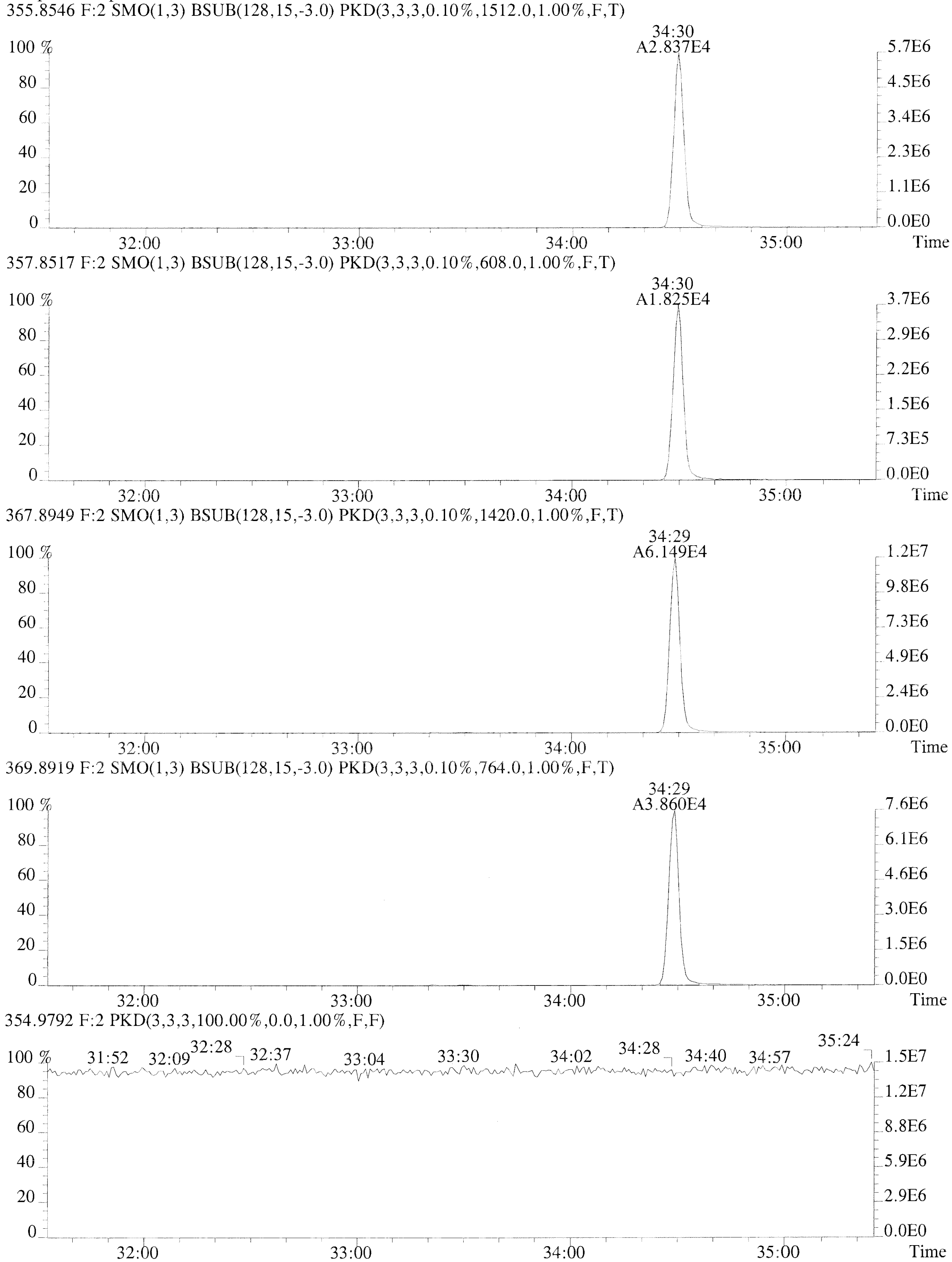
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



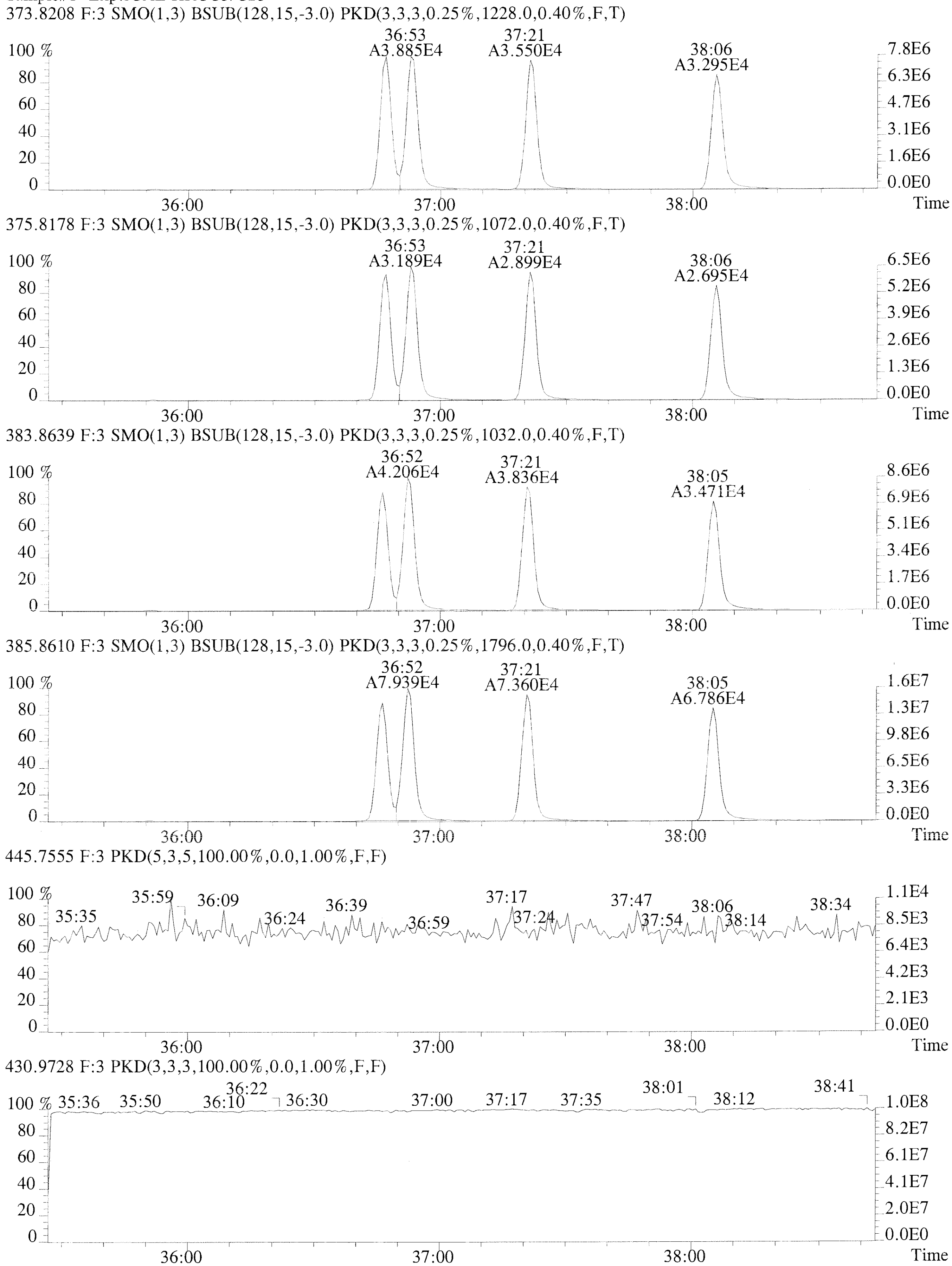
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169973 #1-351 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

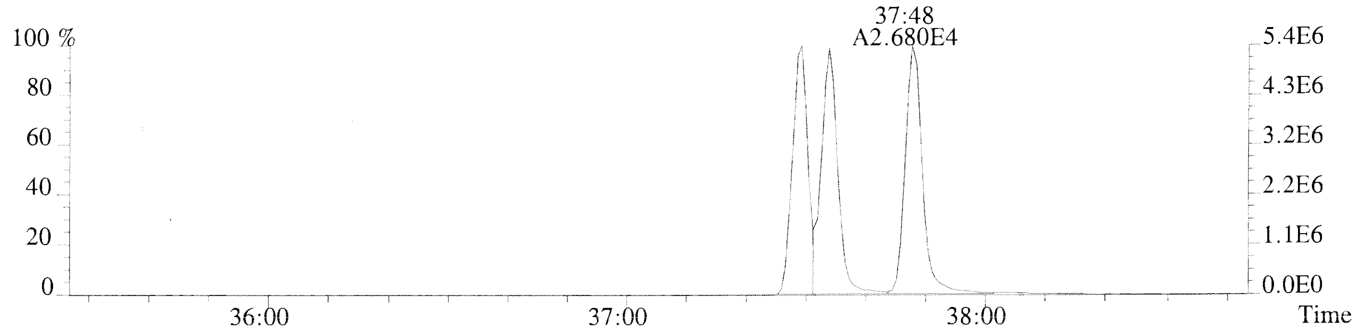


File:P169973 #1-298 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

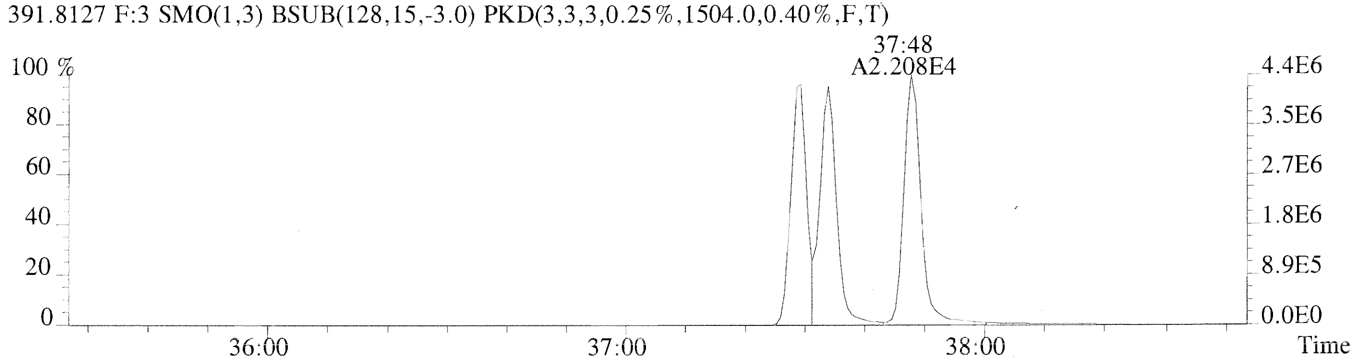


File:P169973 #1-298 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

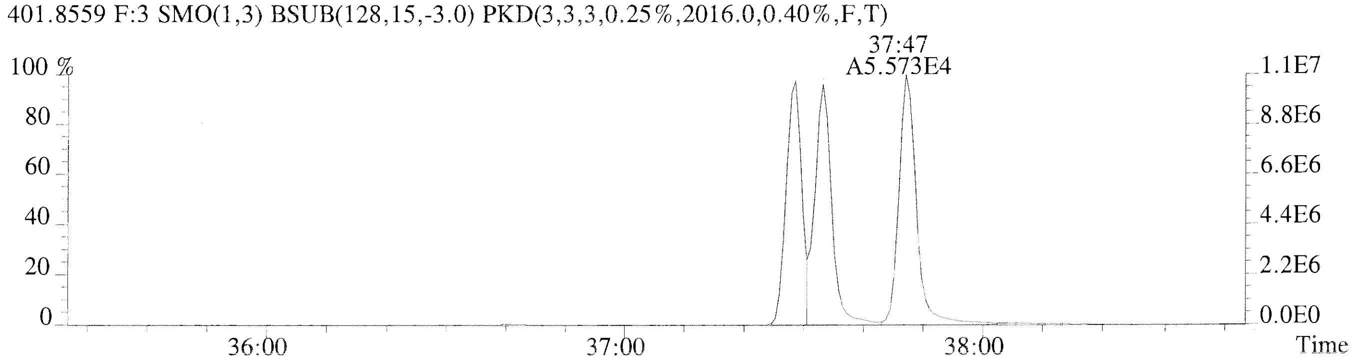
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



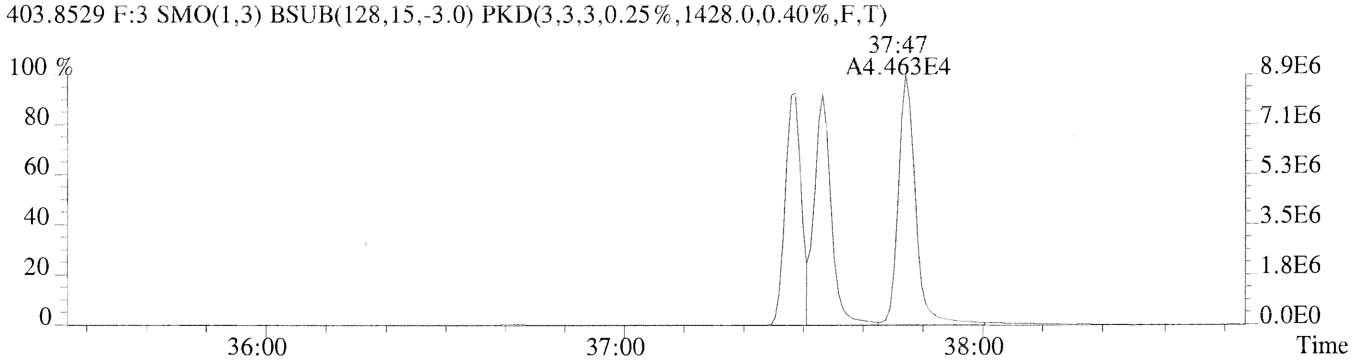
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)



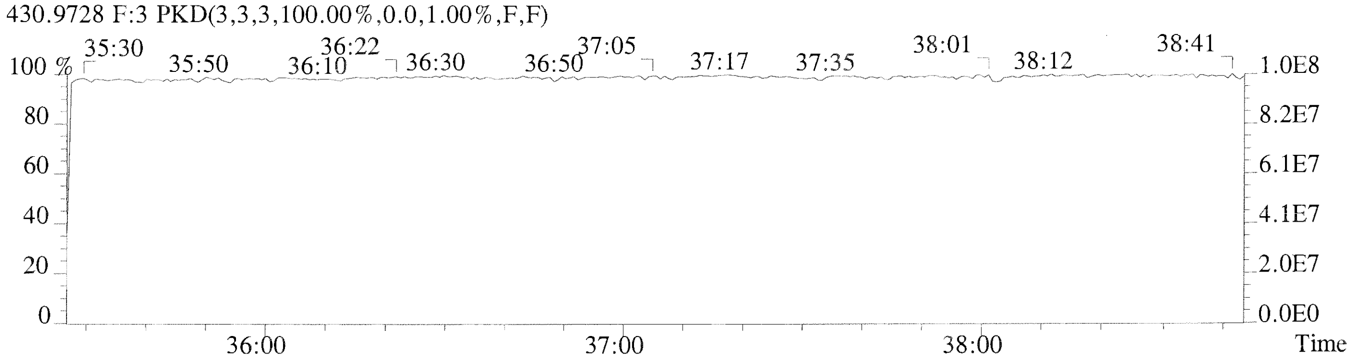
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)

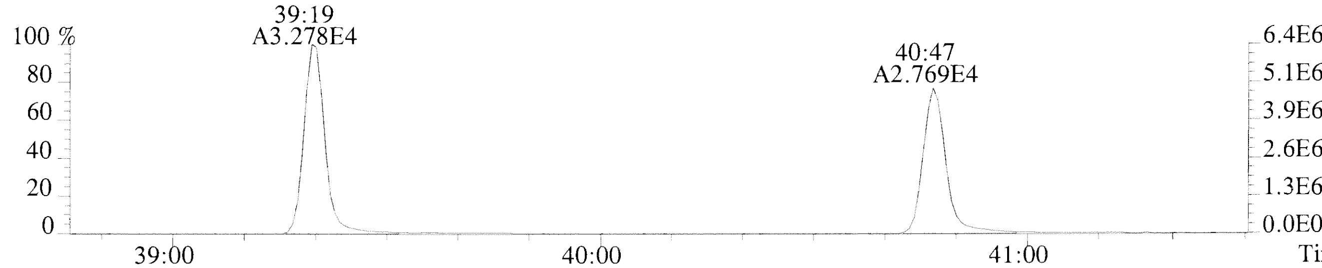


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

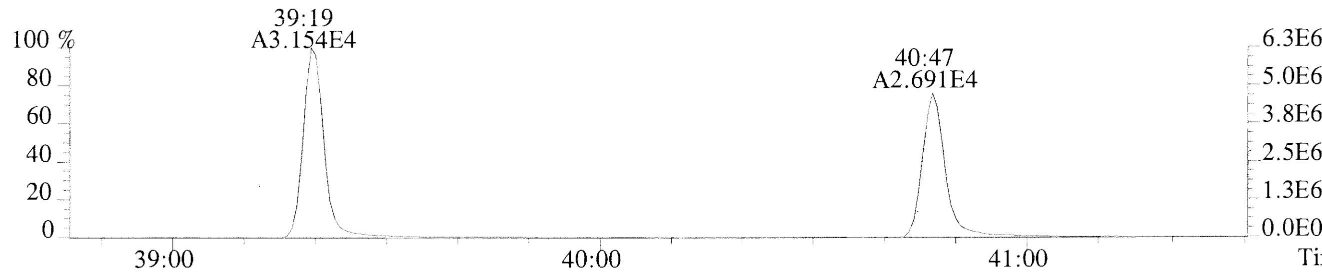


File:P169973 #1-250 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

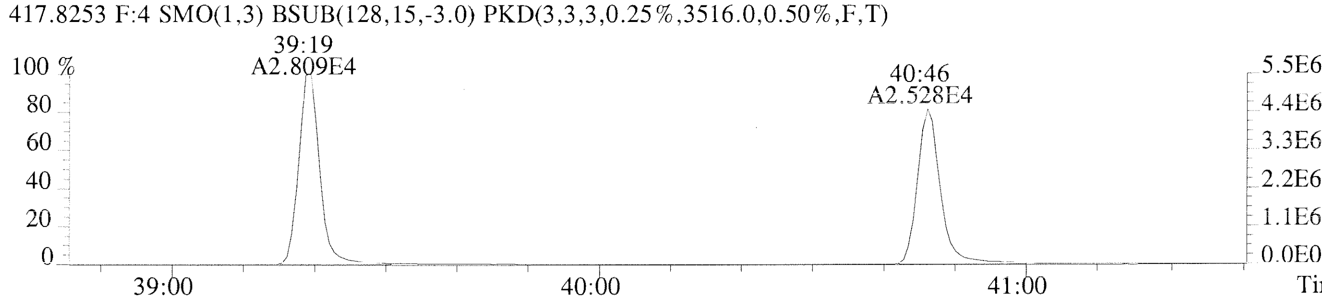
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)



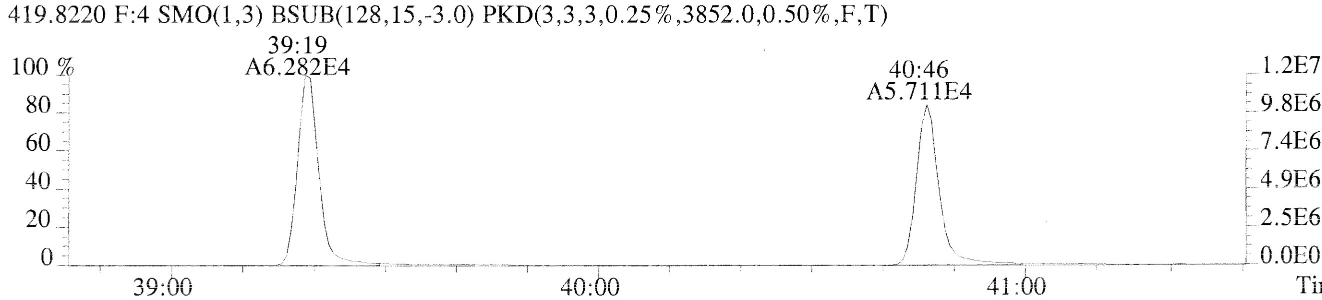
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



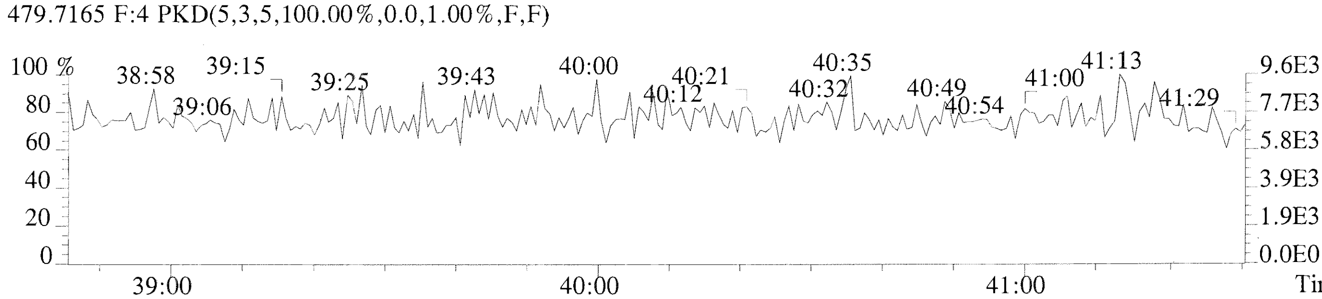
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3516.0,0.50%,F,T)



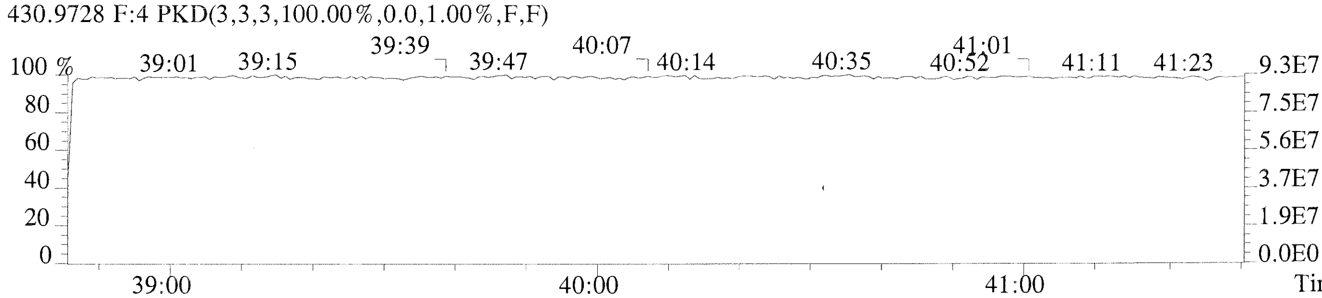
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3852.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

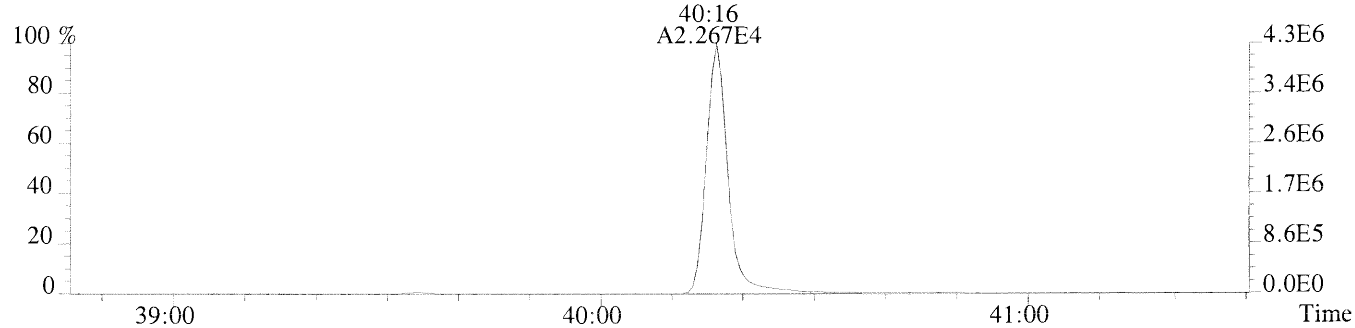


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

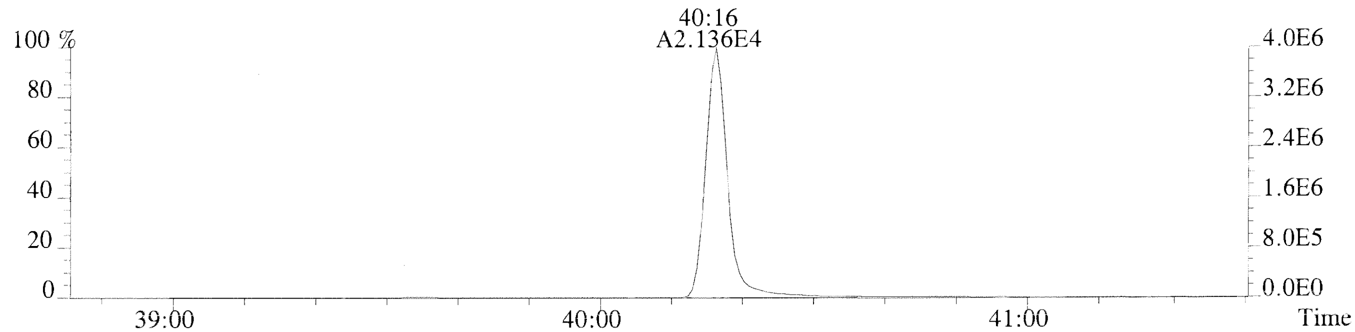


File:P169973 #1-250 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

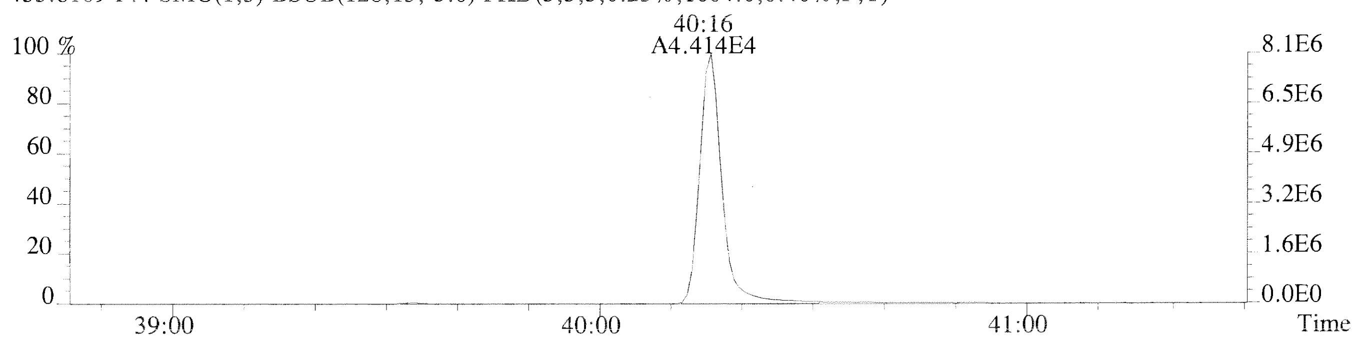
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



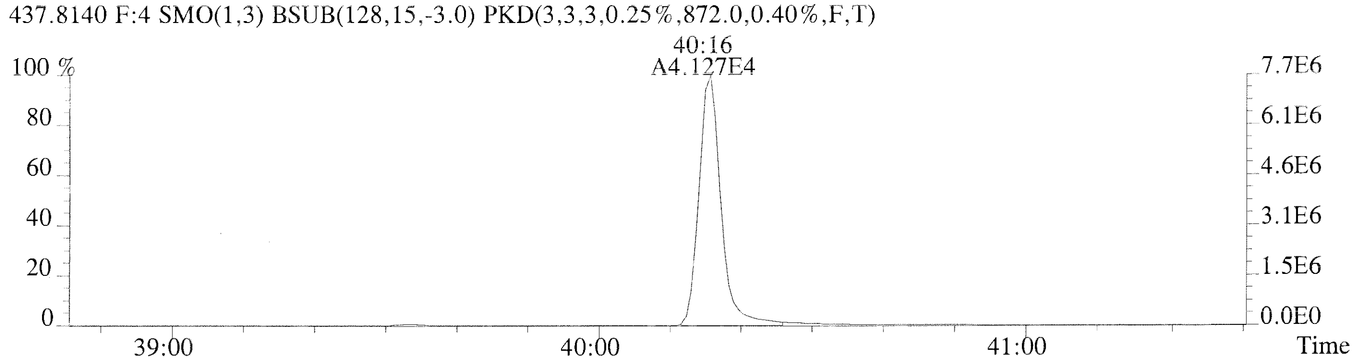
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



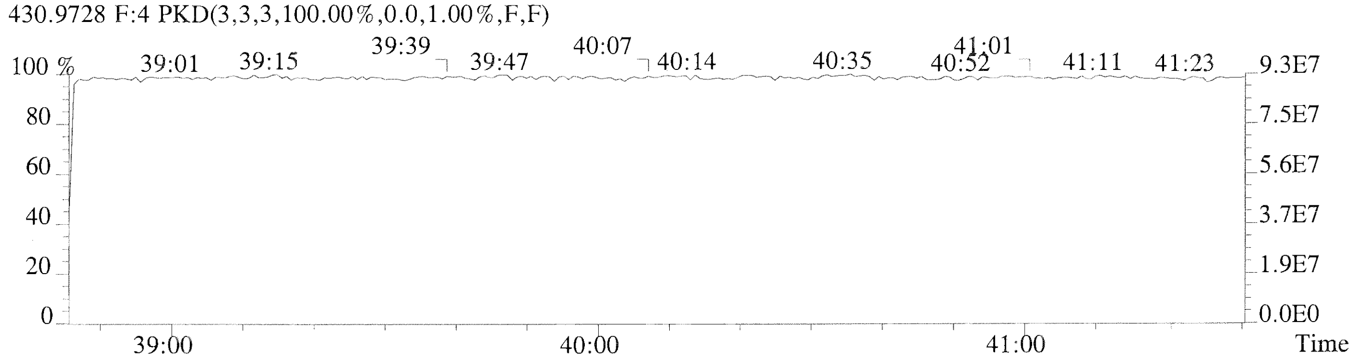
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)

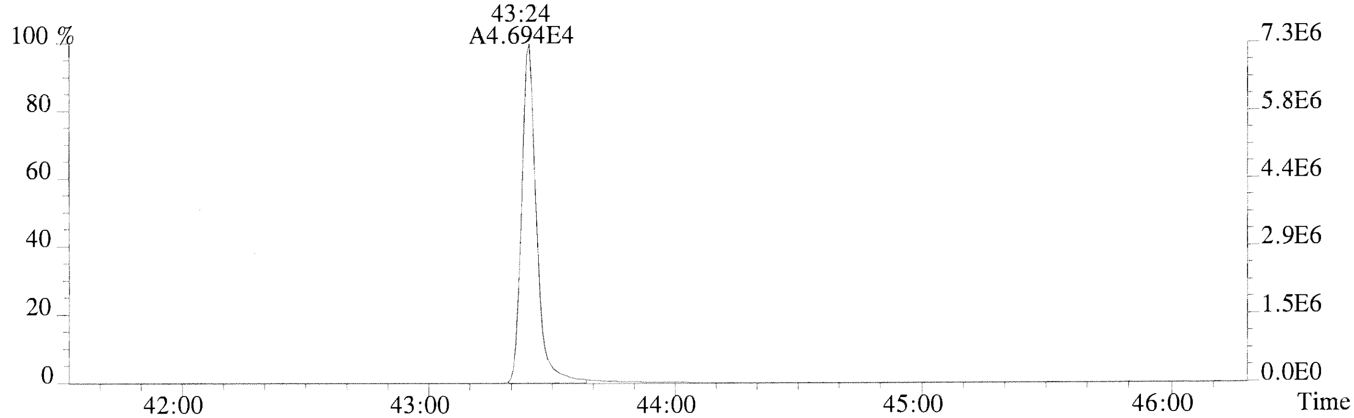


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

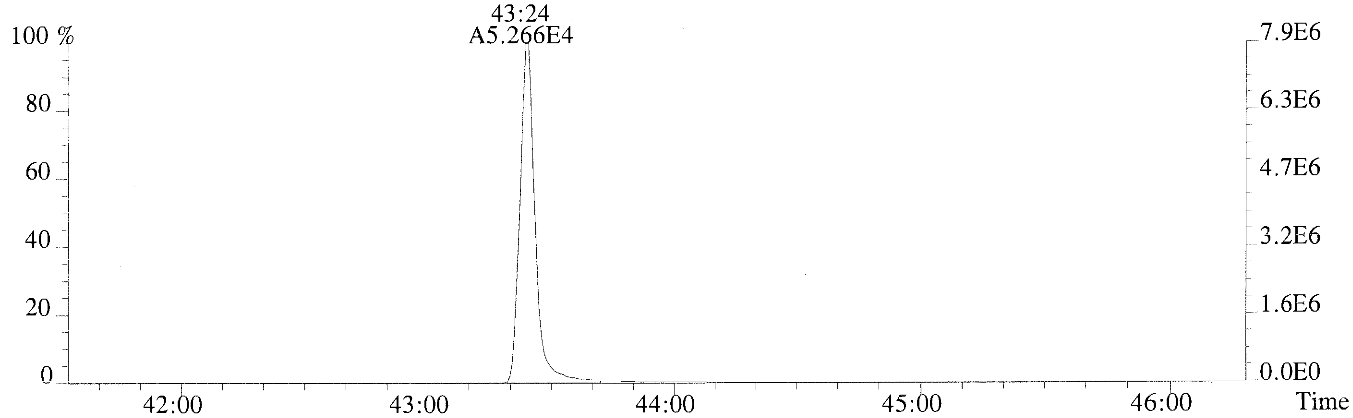


File:P169973 #1-438 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

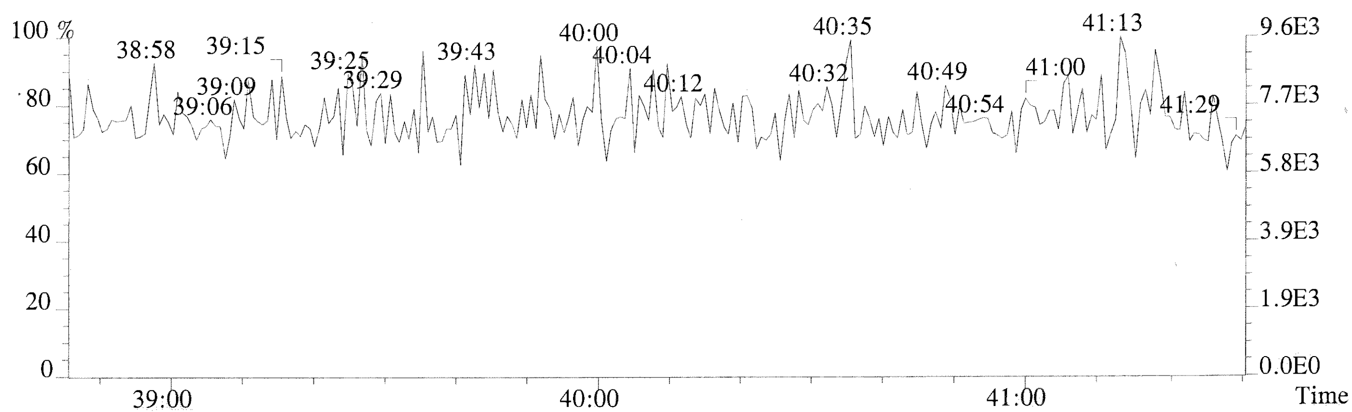
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



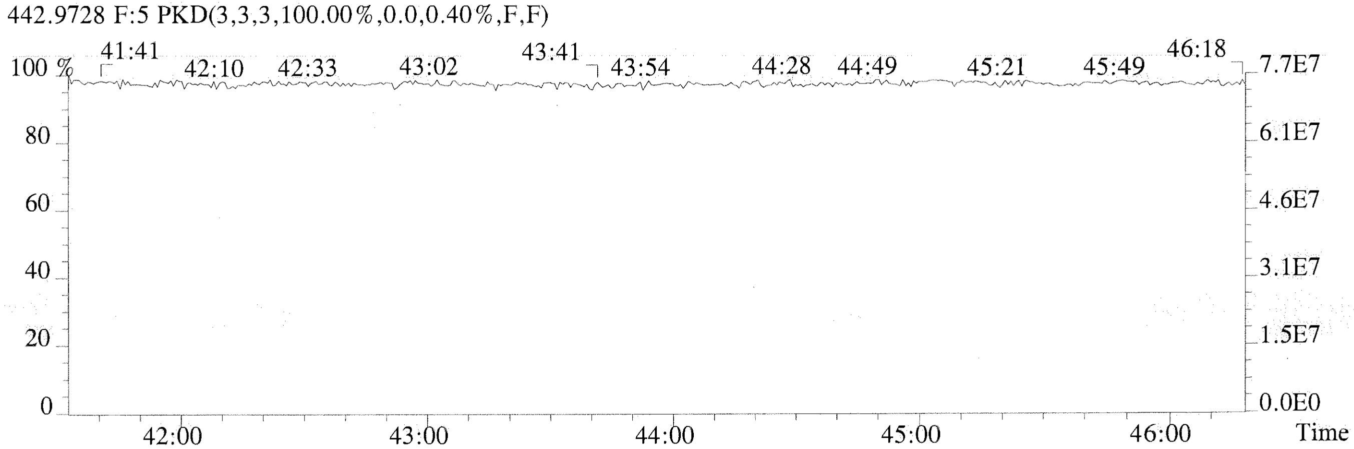
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



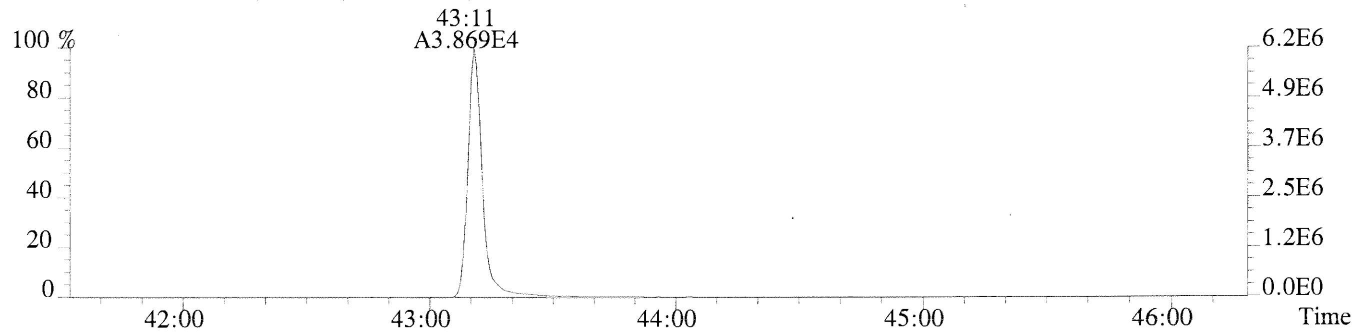
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



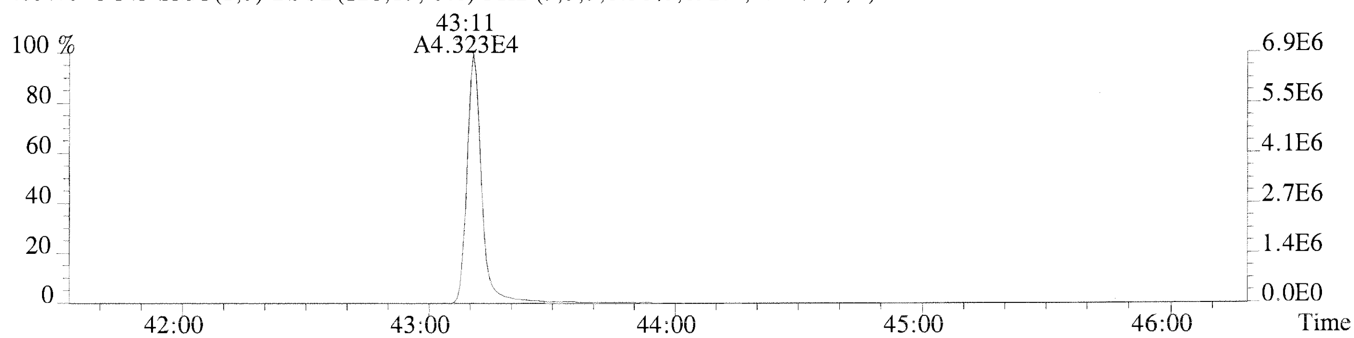
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



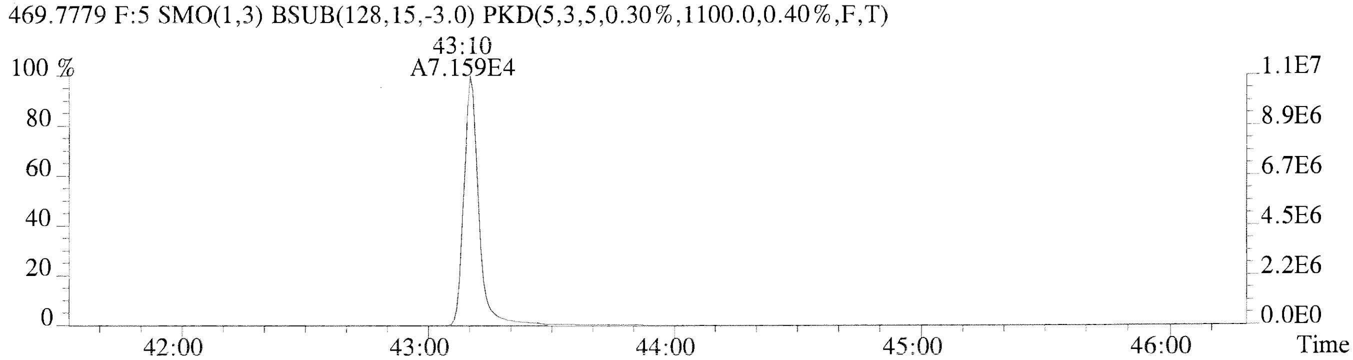
File:P169973 #1-438 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



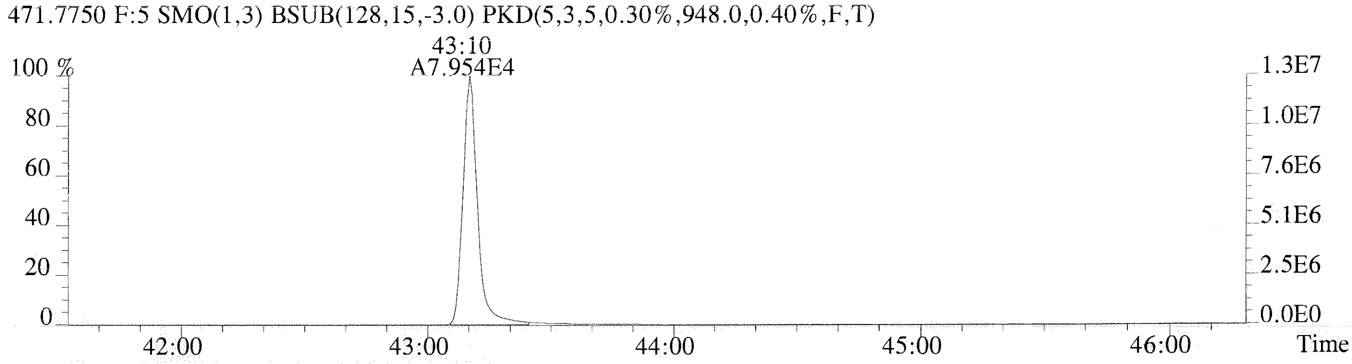
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



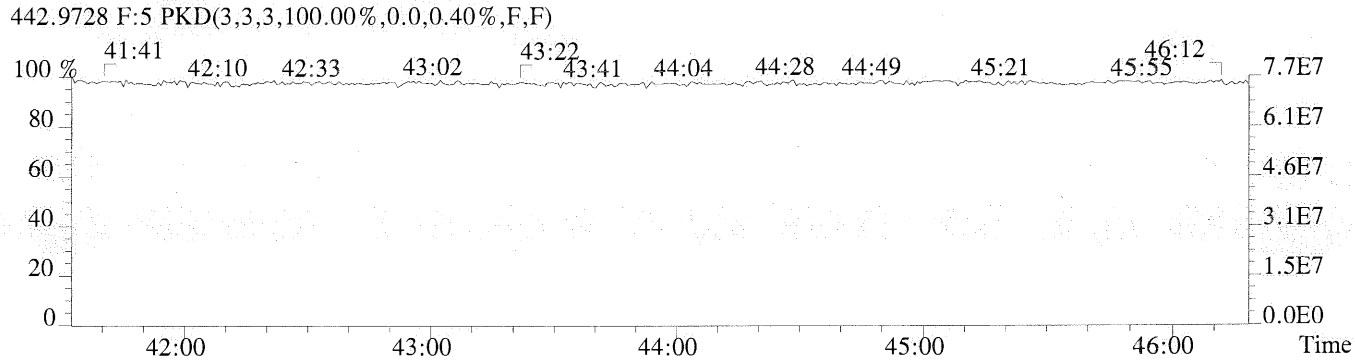
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-90-3D

Run #5 Filename P169974 Samp: 1 Inj: 1 Acquired: 25-MAR-14 20:34:32
Processed: 26-MAR-14 10:01:18 Sample ID: ICAL HRCC4/CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.472e+04	1.928e+04	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	1.712e+05	1.086e+05	1.58	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	1.565e+05	9.864e+04	1.59	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	1.425e+05	1.159e+05	1.23	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.578e+05	1.280e+05	1.23	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.436e+05	1.141e+05	1.26	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.351e+05	1.093e+05	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:20	1.332e+05	1.282e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.131e+05	1.092e+05	1.04	yes	no	1.324
10	Unk	OCDF	43:24	1.994e+05	2.180e+05	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	1.353e+04	1.731e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	1.118e+05	7.182e+04	1.56	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	9.605e+04	7.716e+04	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	1.077e+05	8.695e+04	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	1.105e+05	8.977e+04	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	9.062e+04	8.715e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:10	1.586e+05	1.788e+05	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.916e+04	4.978e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	8.225e+04	5.218e+04	1.58	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	7.908e+04	4.998e+04	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.473e+04	6.744e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	4.167e+04	7.900e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	3.798e+04	7.164e+04	0.53	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	3.464e+04	6.692e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.789e+04	6.320e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.518e+04	5.760e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	3.272e+04	4.102e+04	0.80	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	5.902e+04	3.779e+04	1.56	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	4.689e+04	3.653e+04	1.28	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.309e+04	4.165e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	4.418e+04	4.198e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	7.240e+04	7.997e+04	0.91	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.315e+04	2.962e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	5.677e+04	4.355e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	3.201e+04				no	1.125

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

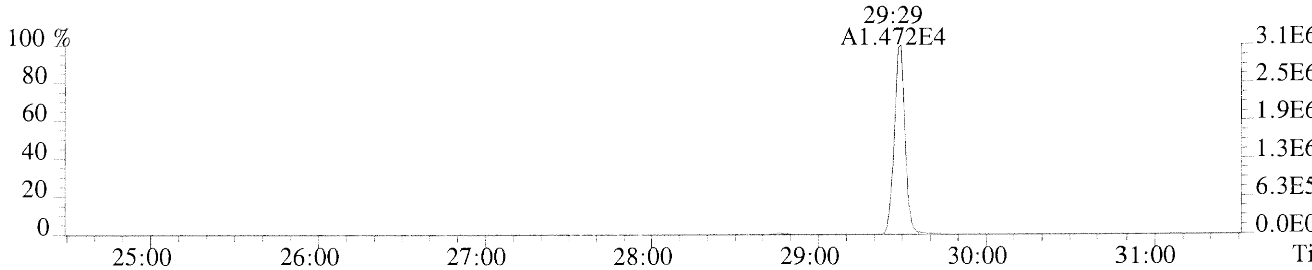
CLIENT ID.
D12-90-3D

Run #5 Filename P169974 Samp: 1 Inj: 1 Acquired: 25-MAR-14 20:34:32
Processed: 26-MAR-14 08:20:201 LAB. ID: ICAL HRCC4/CS4

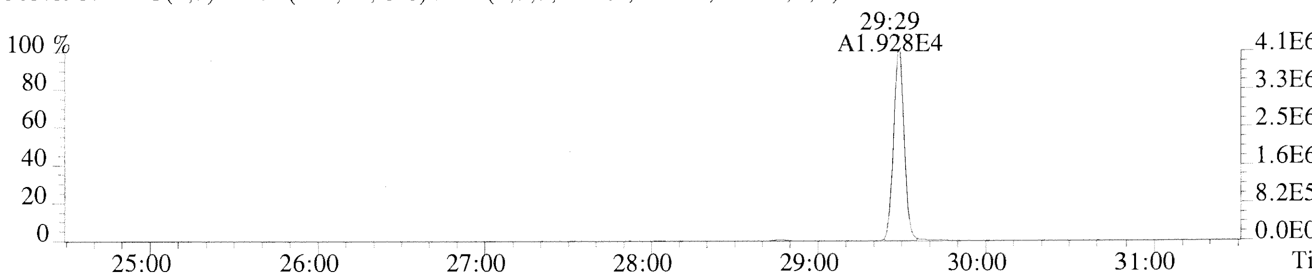
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.14e+06	8.52e+02	3.7e+03	4.09e+06	2.87e+03	1.4e+03
2	1,2,3,7,8-PeCDF	3.24e+07	5.88e+02	5.5e+04	2.07e+07	1.79e+03	1.2e+04
3	2,3,4,7,8-PeCDF	3.16e+07	5.88e+02	5.4e+04	2.01e+07	1.79e+03	1.1e+04
4	1,2,3,4,7,8-HxCDF	3.08e+07	1.60e+03	1.9e+04	2.47e+07	8.24e+02	3.0e+04
5	1,2,3,6,7,8-HxCDF	3.13e+07	1.60e+03	2.0e+04	2.53e+07	8.24e+02	3.1e+04
6	2,3,4,6,7,8-HxCDF	3.00e+07	1.60e+03	1.9e+04	2.39e+07	8.24e+02	2.9e+04
7	1,2,3,7,8,9-HxCDF	2.69e+07	1.60e+03	1.7e+04	2.18e+07	8.24e+02	2.6e+04
8	1,2,3,4,6,7,8-HpCDF	2.59e+07	8.95e+03	2.9e+03	2.50e+07	5.36e+03	4.7e+03
9	1,2,3,4,7,8,9-HpCDF	2.04e+07	8.95e+03	2.3e+03	1.97e+07	5.36e+03	3.7e+03
10	OCDF	3.09e+07	9.88e+02	3.1e+04	3.33e+07	1.71e+03	1.9e+04
11	2,3,7,8-TCDD	2.95e+06	1.30e+03	2.3e+03	3.85e+06	1.70e+03	2.3e+03
12	1,2,3,7,8-PeCDD	2.25e+07	1.22e+03	1.8e+04	1.45e+07	9.40e+02	1.5e+04
13	1,2,3,4,7,8-HxCDD	2.17e+07	8.72e+02	2.5e+04	1.72e+07	1.18e+03	1.5e+04
14	1,2,3,6,7,8-HxCDD	2.16e+07	8.72e+02	2.5e+04	1.75e+07	1.18e+03	1.5e+04
15	1,2,3,7,8,9-HxCDD	2.21e+07	8.72e+02	2.5e+04	1.78e+07	1.18e+03	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	1.69e+07	1.24e+03	1.4e+04	1.62e+07	1.18e+03	1.4e+04
17	OCDD	2.45e+07	8.36e+02	2.9e+04	2.75e+07	7.96e+02	3.5e+04
18	13C-2,3,7,8-TCDF	8.39e+06	1.81e+03	4.6e+03	1.06e+07	1.78e+03	6.0e+03
19	13C-1,2,3,7,8-PeCDF	1.55e+07	6.88e+02	2.3e+04	9.98e+06	1.62e+03	6.1e+03
20	13C-2,3,4,7,8-PeCDF	1.59e+07	6.88e+02	2.3e+04	9.98e+06	1.62e+03	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	7.48e+06	1.33e+03	5.6e+03	1.44e+07	2.28e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	8.24e+06	1.33e+03	6.2e+03	1.56e+07	2.28e+03	6.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.77e+06	1.33e+03	5.8e+03	1.48e+07	2.28e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	6.76e+06	1.33e+03	5.1e+03	1.31e+07	2.28e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.47e+06	2.08e+03	2.6e+03	1.23e+07	3.44e+03	3.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.54e+06	2.08e+03	2.2e+03	1.03e+07	3.44e+03	3.0e+03
27	13C-2,3,7,8-TCDD	7.31e+06	4.25e+03	1.7e+03	9.26e+06	2.48e+03	3.7e+03
28	13C-1,2,3,7,8-PeCDD	1.17e+07	1.26e+03	9.3e+03	7.48e+06	9.96e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.06e+07	1.52e+03	7.0e+03	8.16e+06	1.59e+03	5.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	1.52e+03	6.9e+03	8.39e+06	1.59e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.24e+06	1.69e+03	4.9e+03	7.72e+06	1.04e+03	7.4e+03
32	13C-OCDD	1.09e+07	1.13e+03	9.7e+03	1.23e+07	9.00e+02	1.4e+04
33	13C-1,2,3,4-TCDD	5.19e+06	4.25e+03	1.2e+03	6.68e+06	2.48e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	1.52e+03	7.1e+03	8.62e+06	1.59e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	7.04e+06	1.79e+03	3.9e+03			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

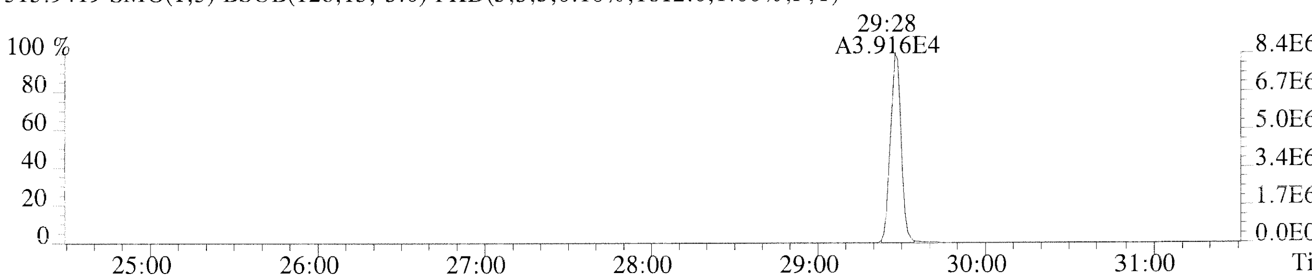
File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



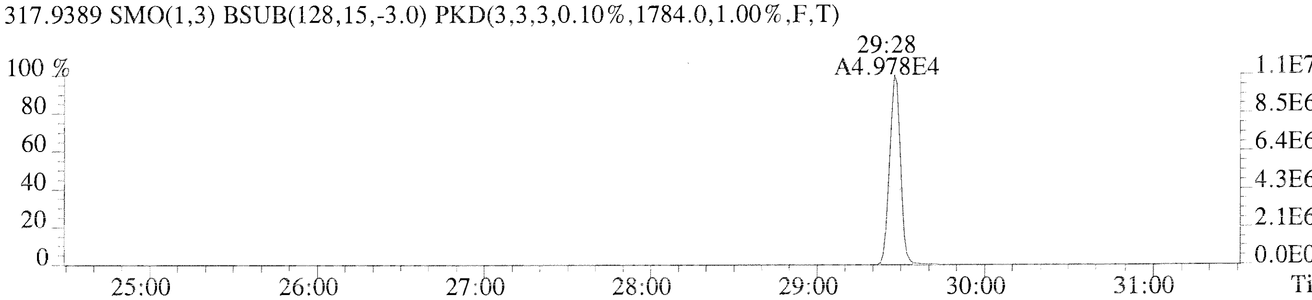
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



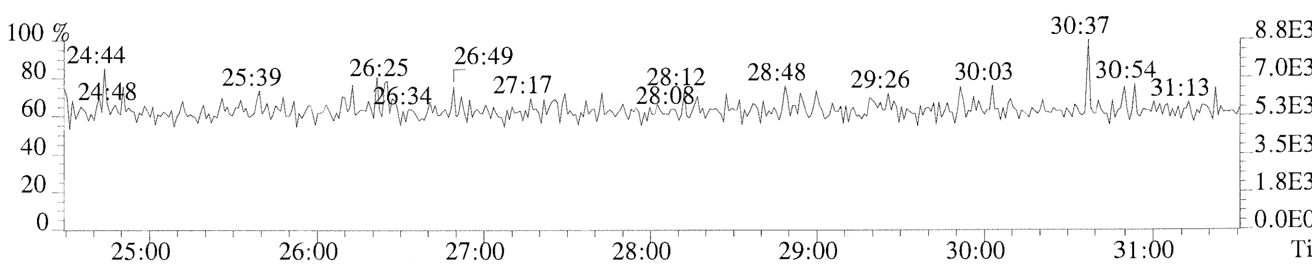
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



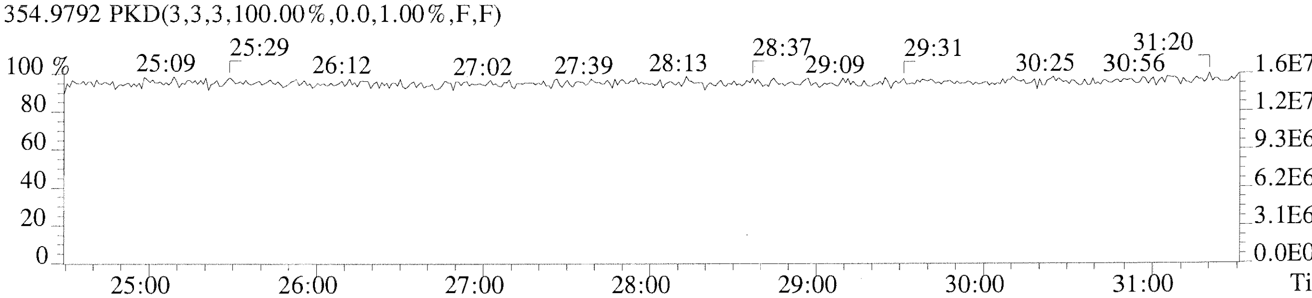
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

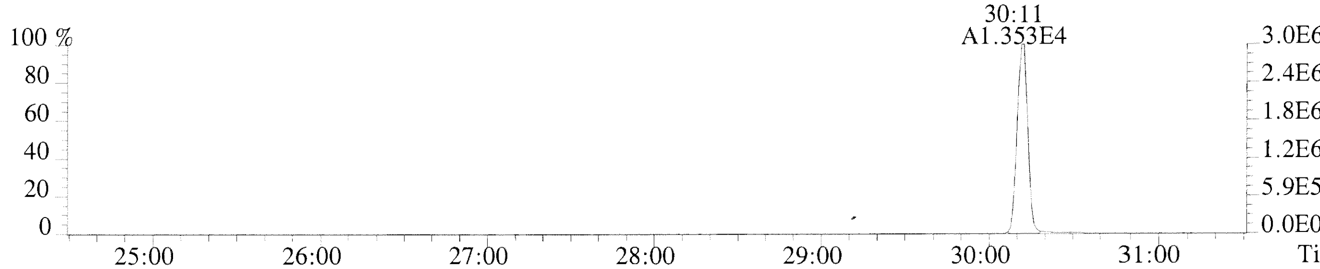


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

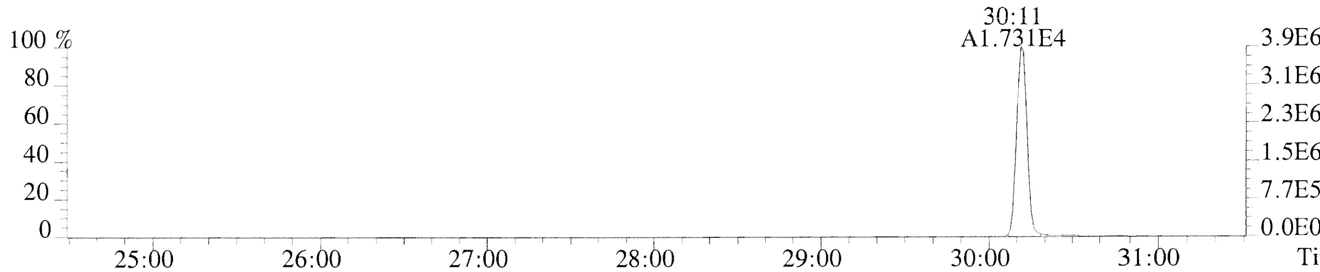


File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

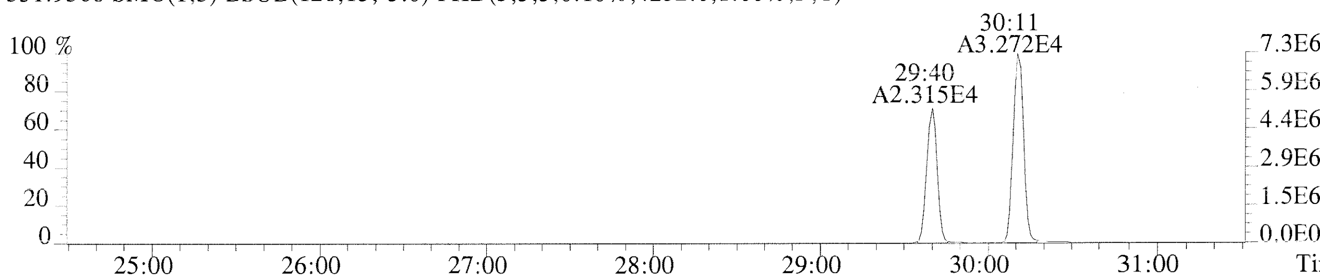
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



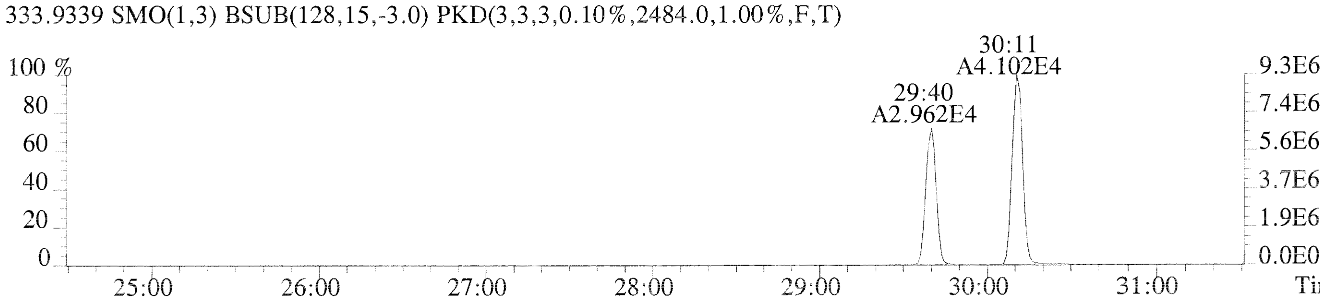
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



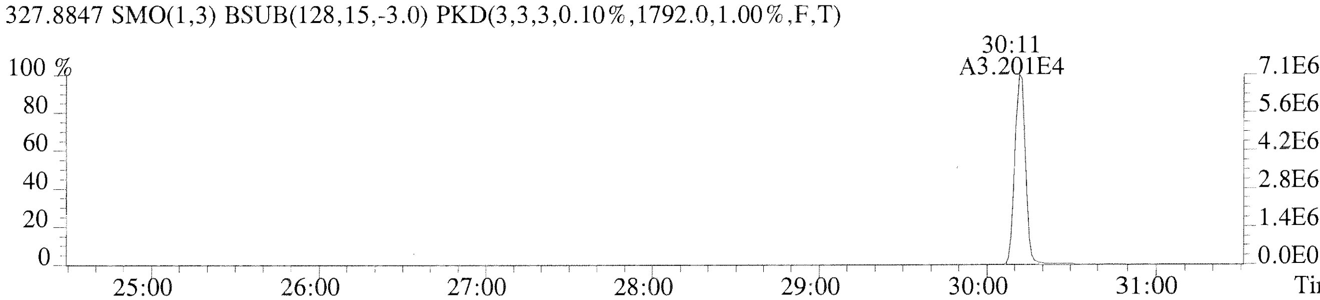
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



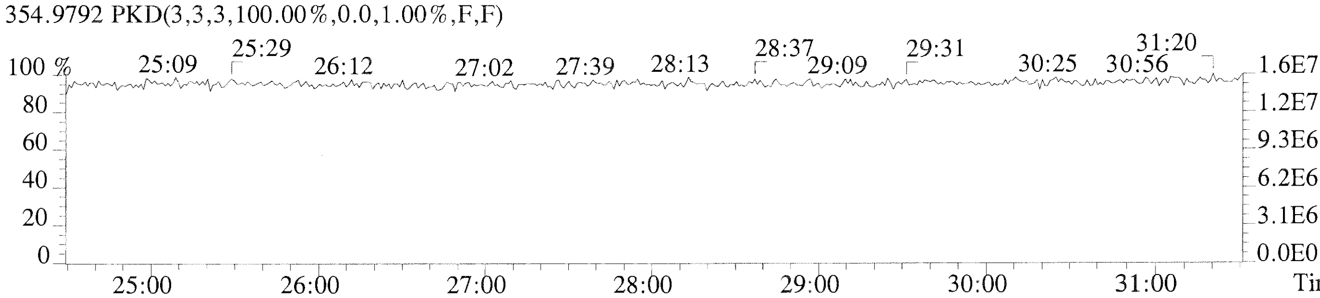
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)

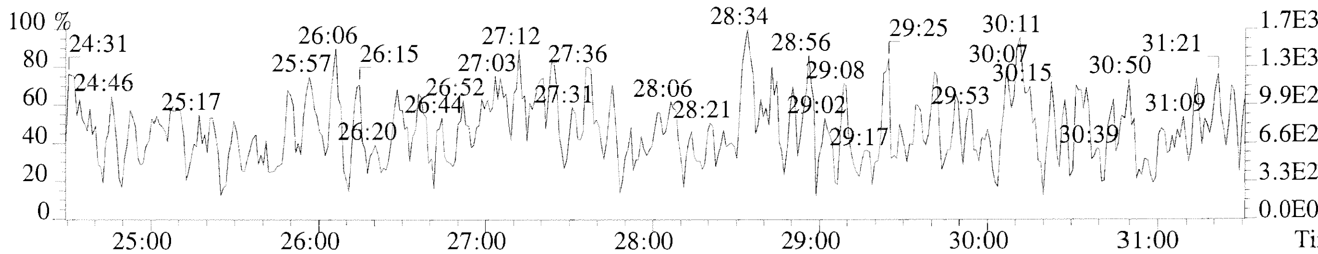


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

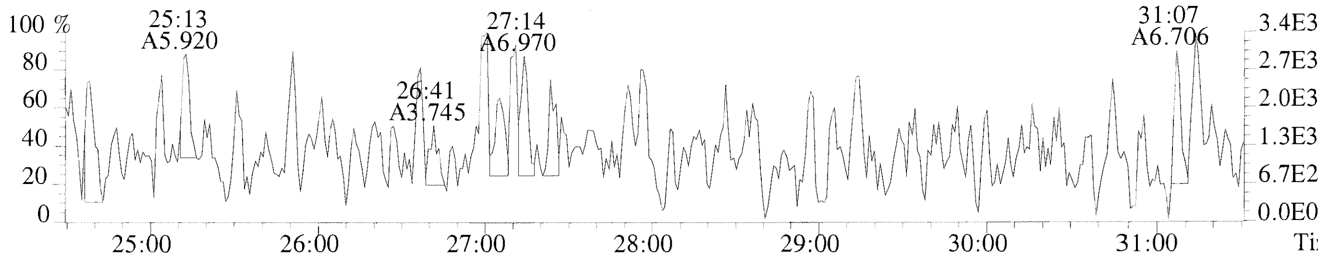


File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

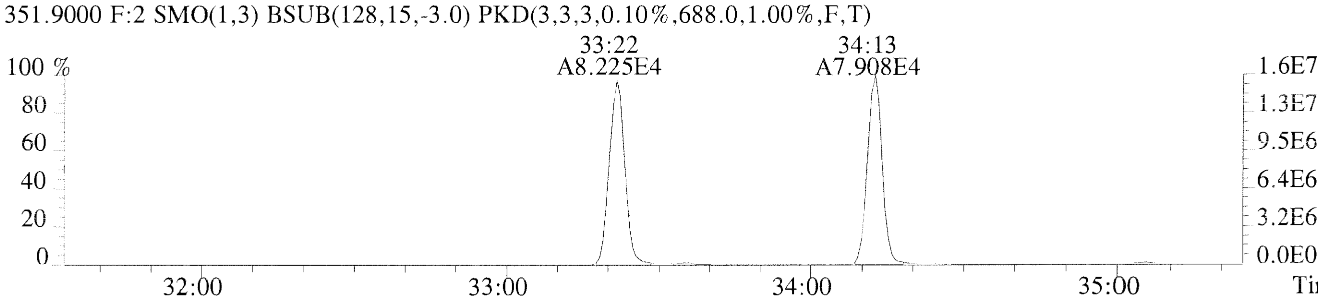
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



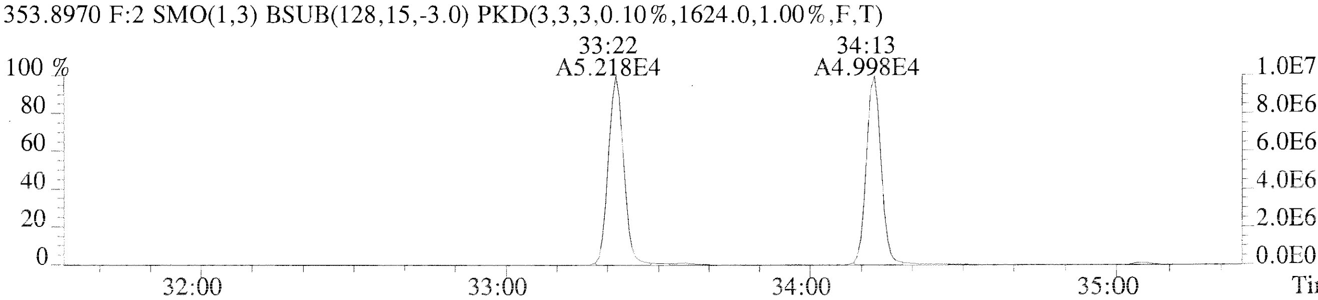
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



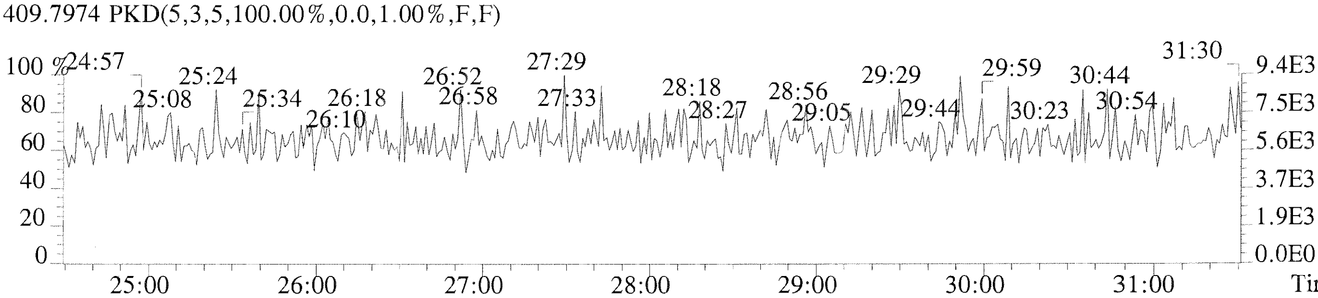
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



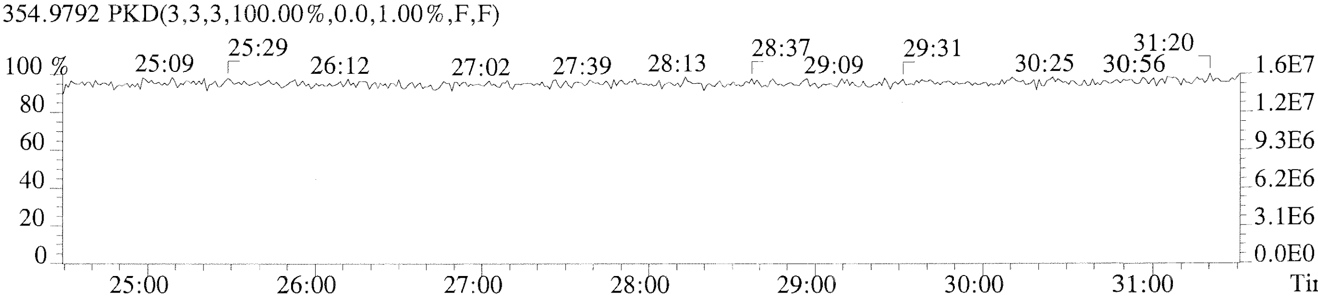
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

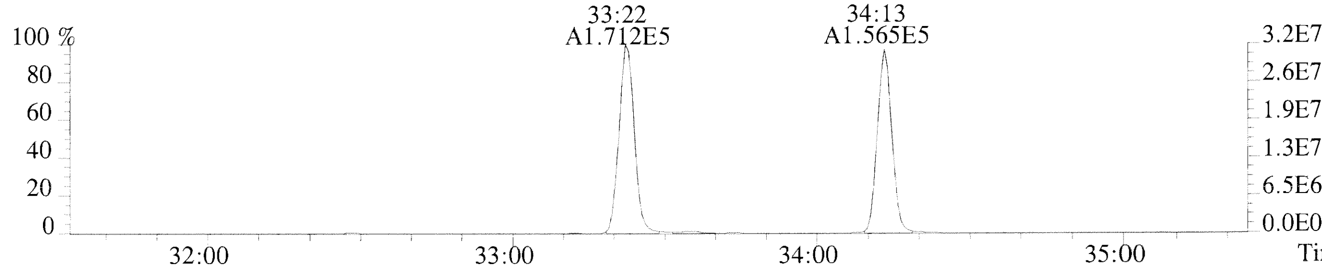


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

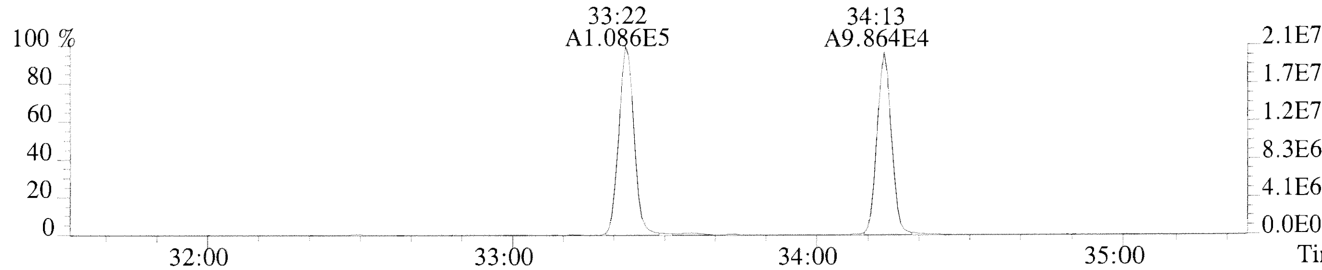


File:P169974 #1-350 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

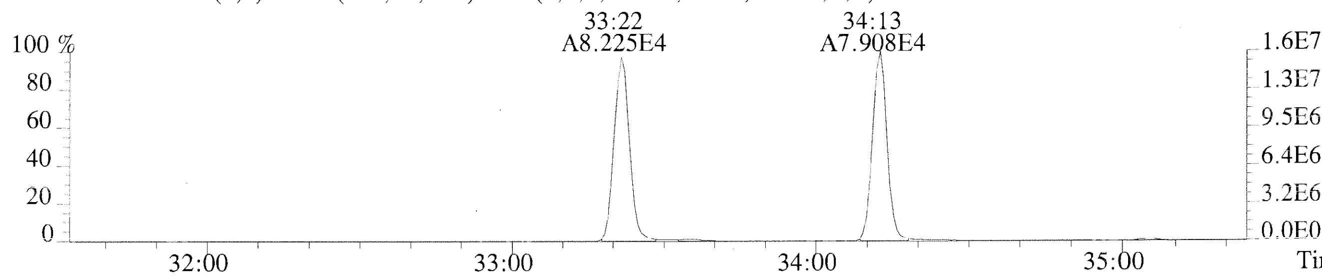
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



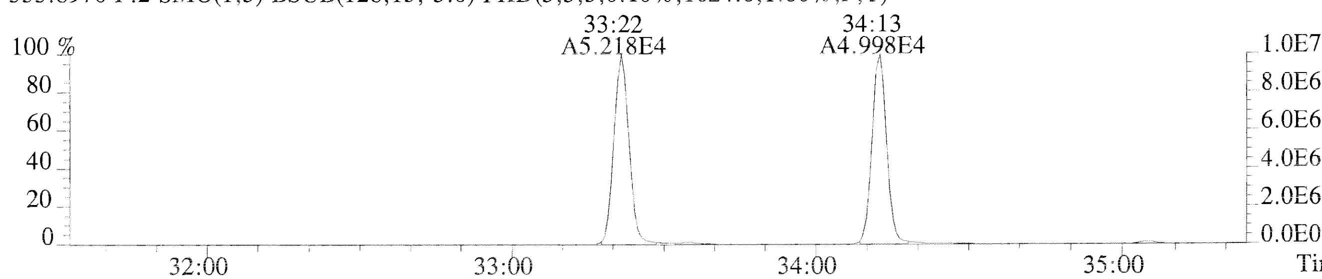
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



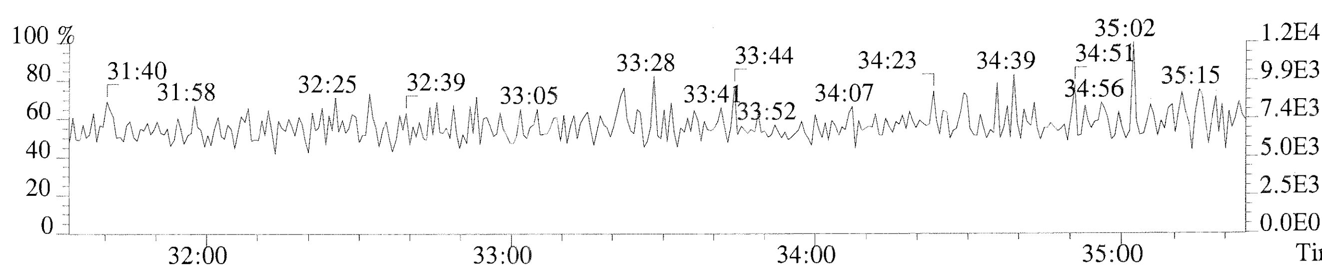
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



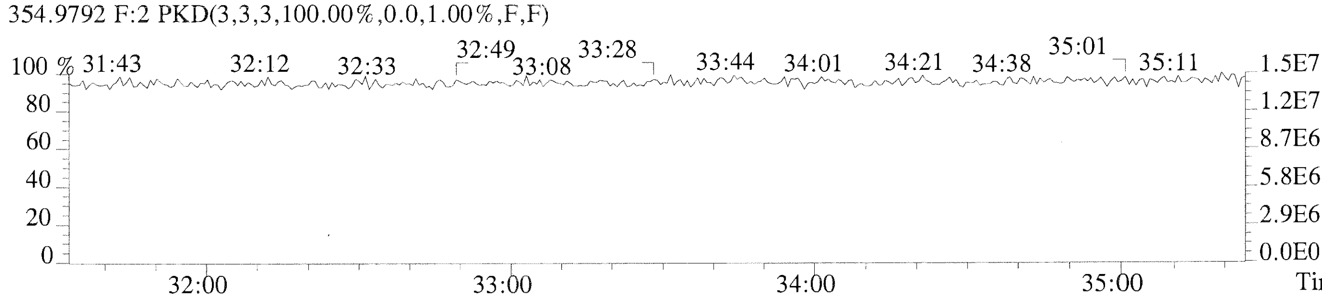
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

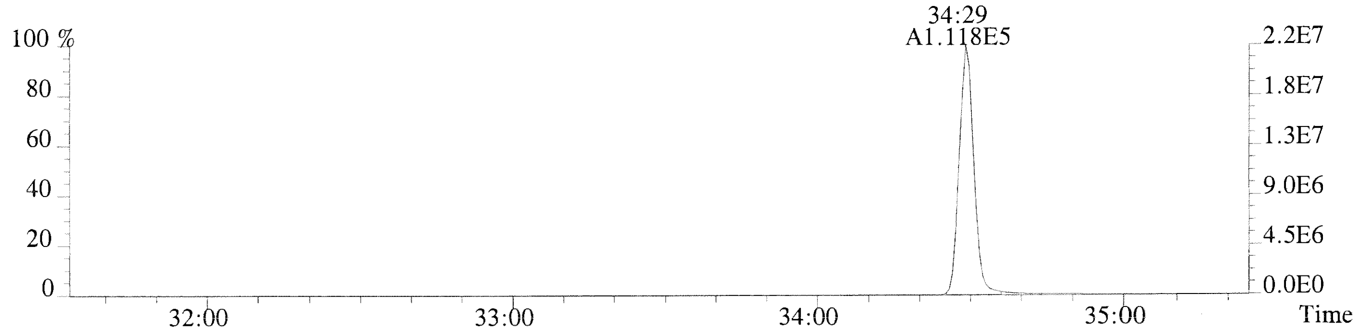


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

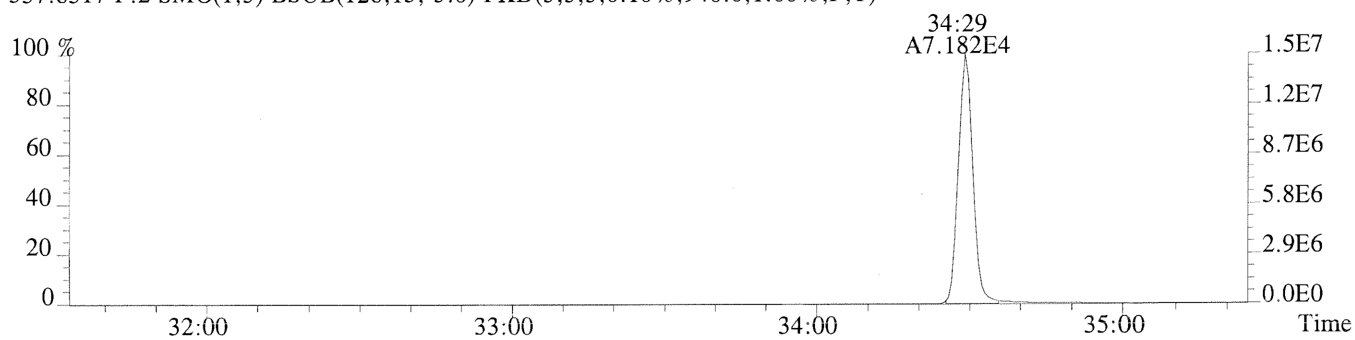


File:P169974 #1-350 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

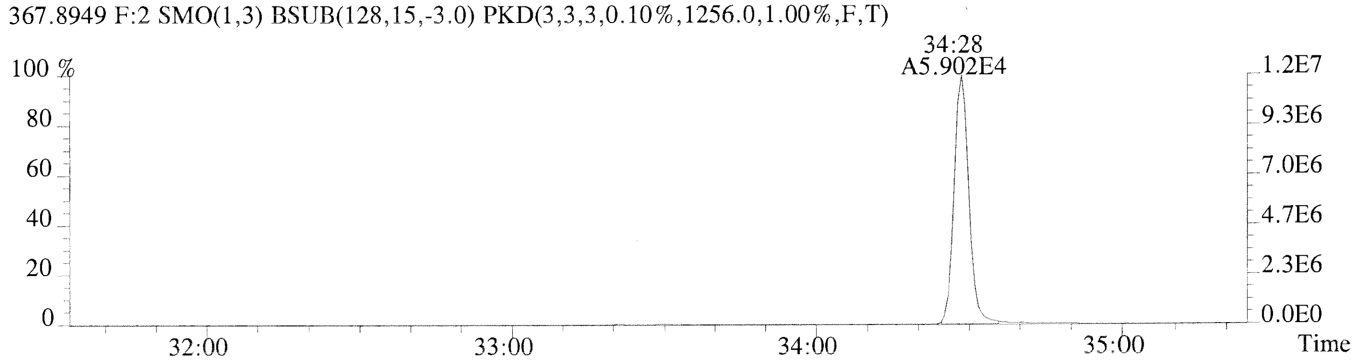
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



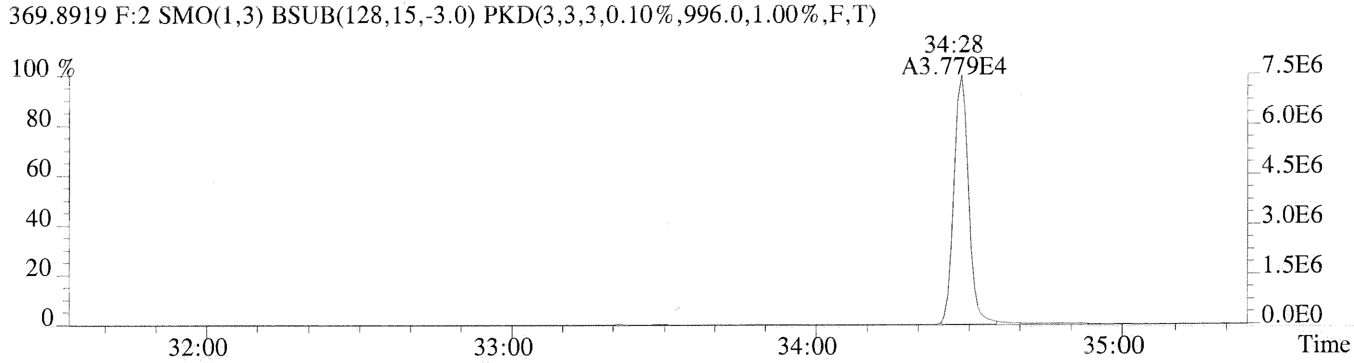
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



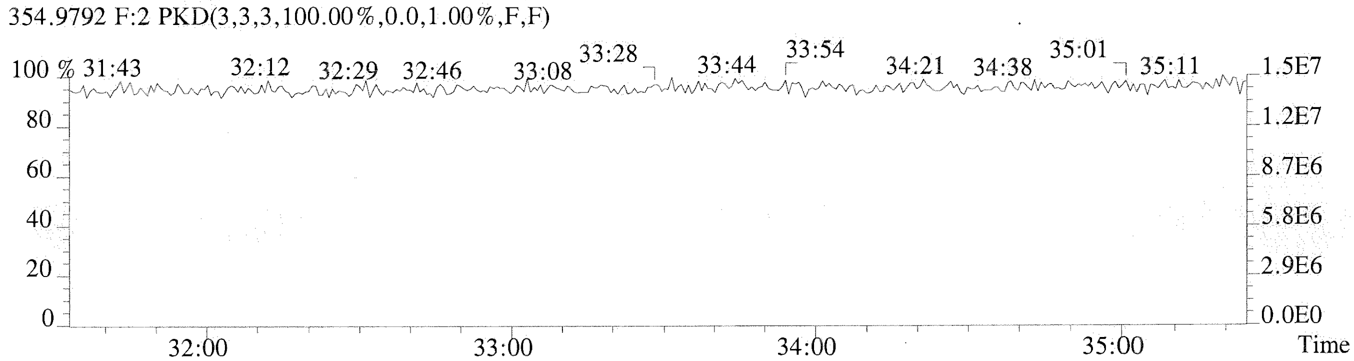
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



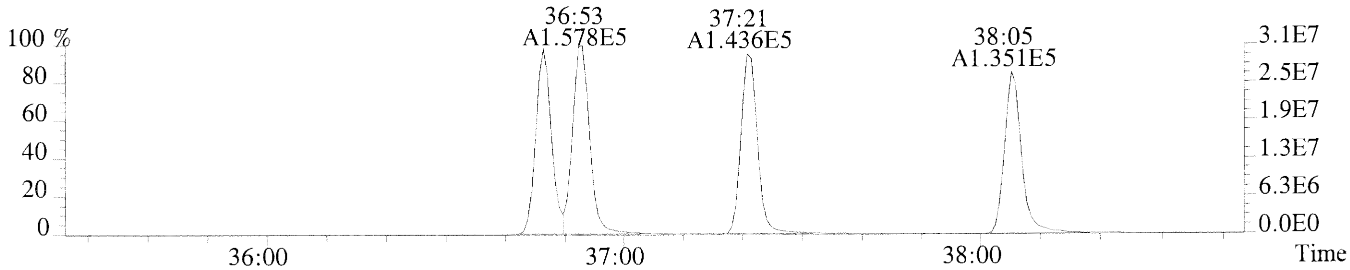
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



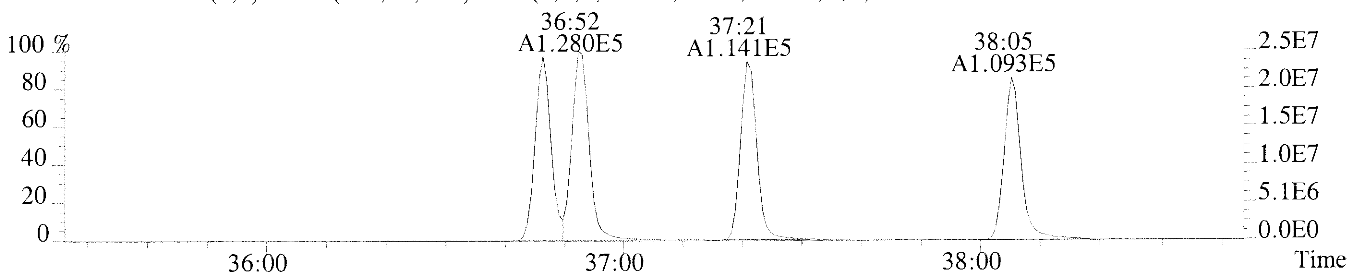
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



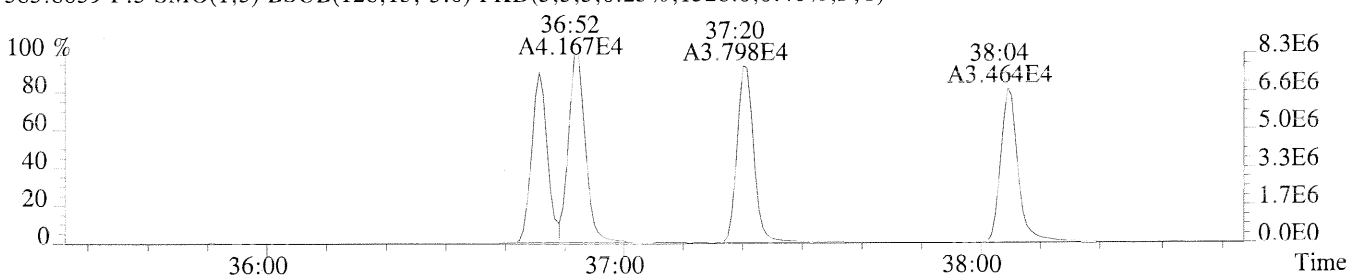
File:P169974 #1-299 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



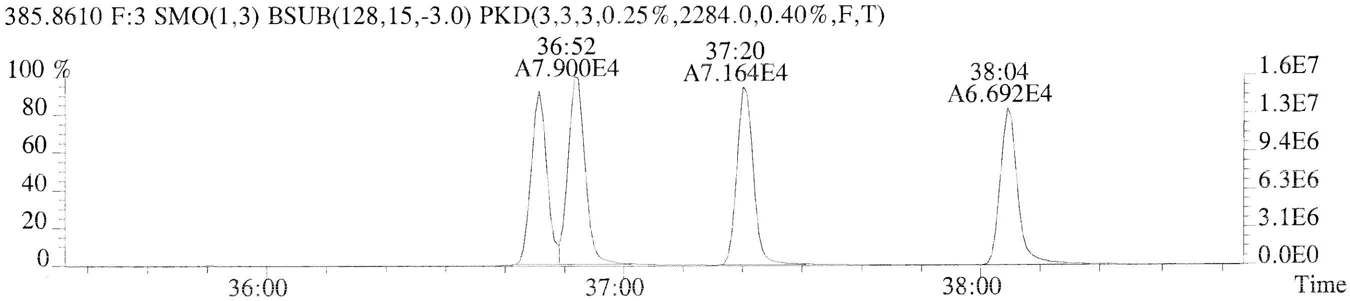
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



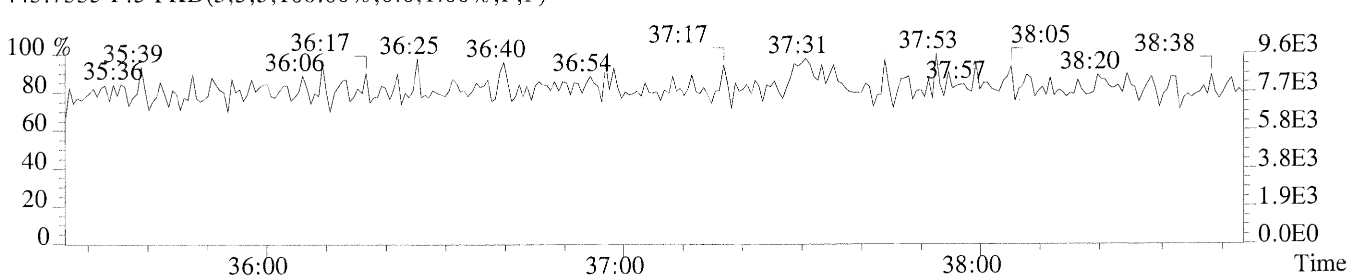
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



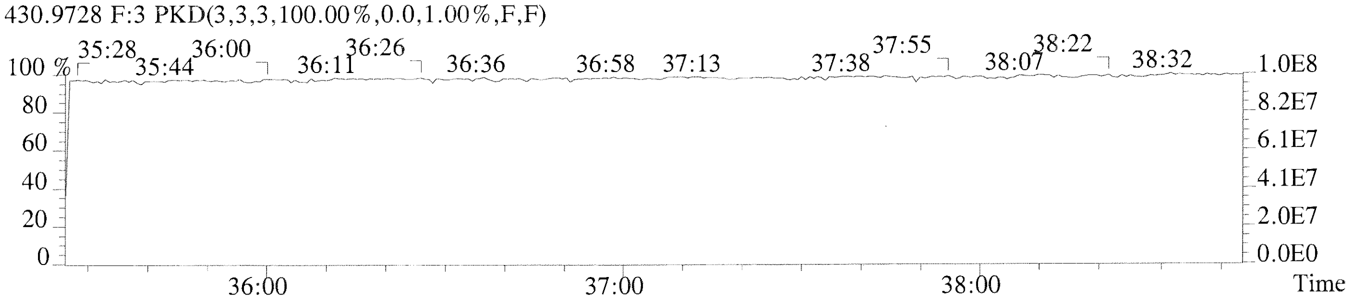
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.40%,F,T)



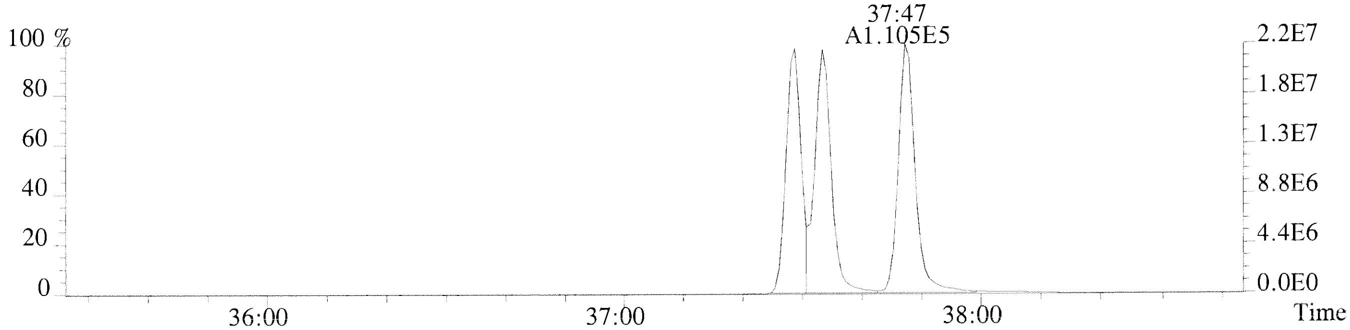
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



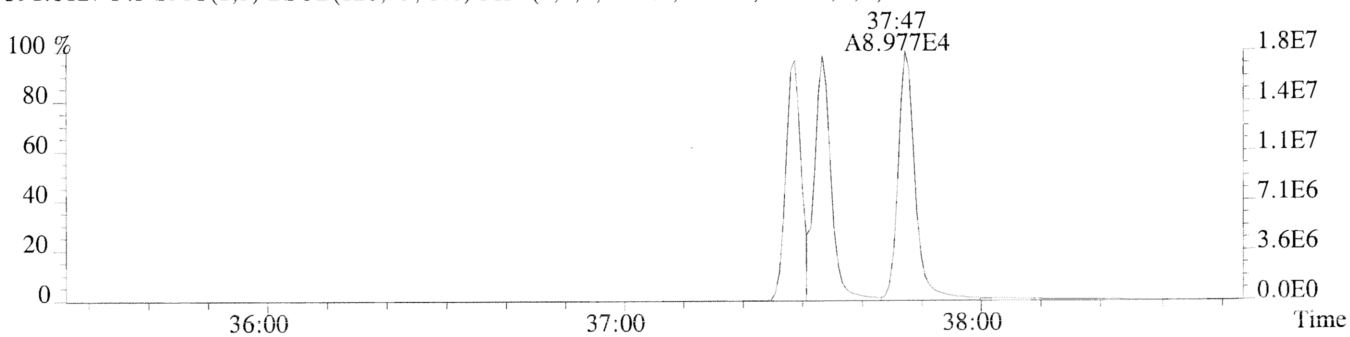
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



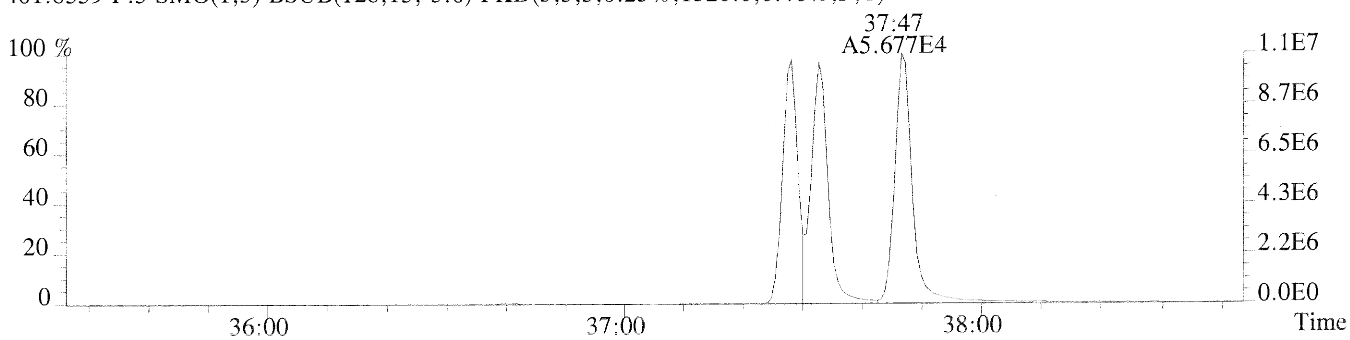
File:P169974 #1-299 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



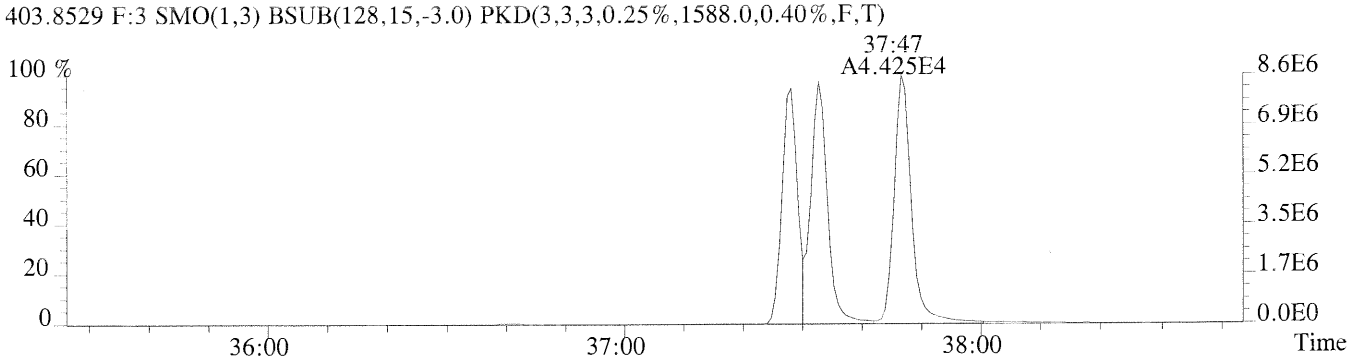
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



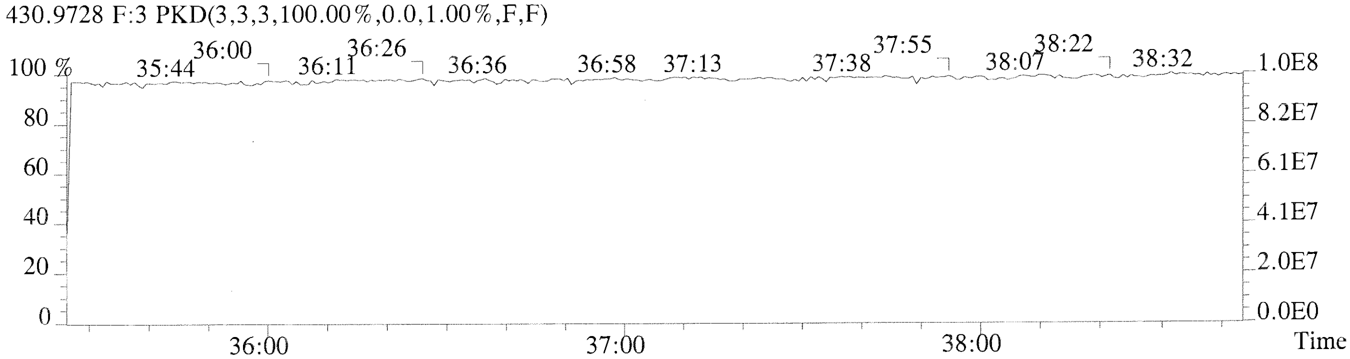
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)

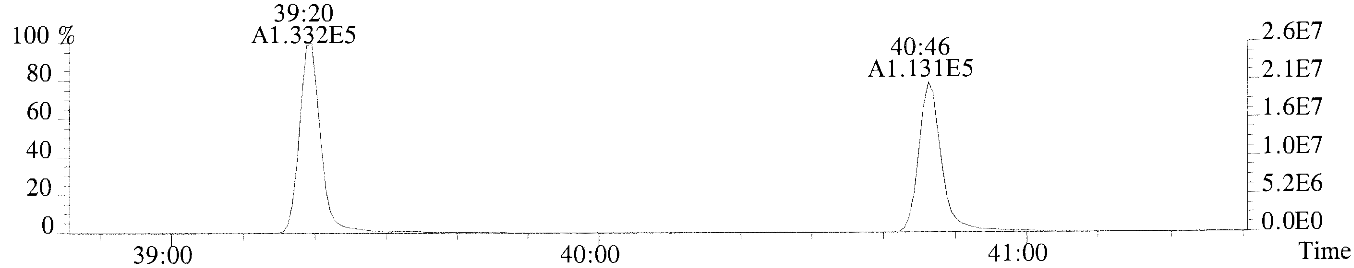


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

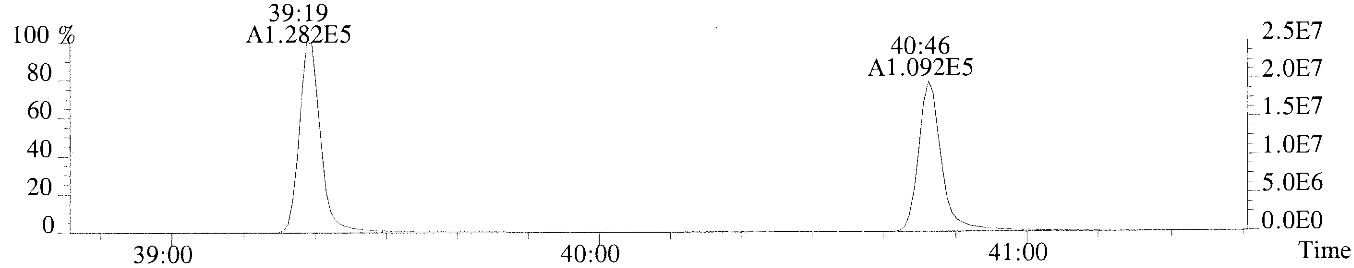


File:P169974 #1-250 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

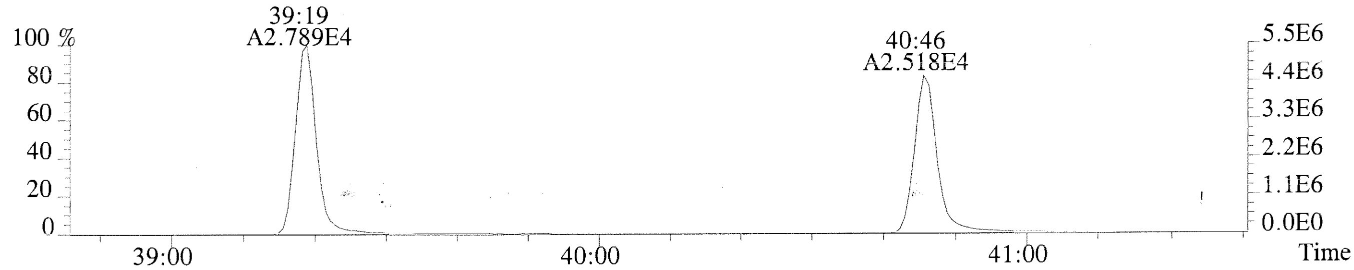
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8952.0,0.50%,F,T)



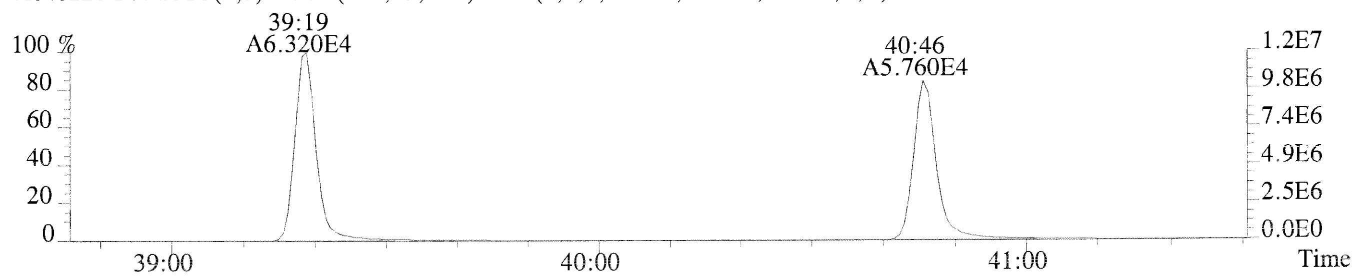
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5364.0,0.50%,F,T)



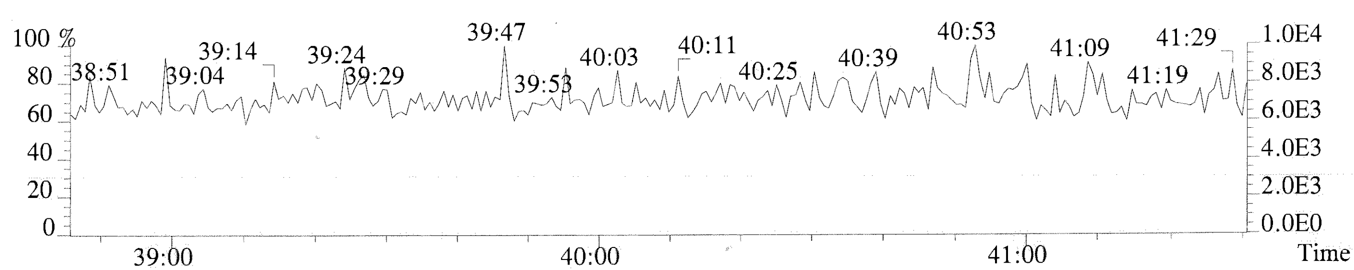
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



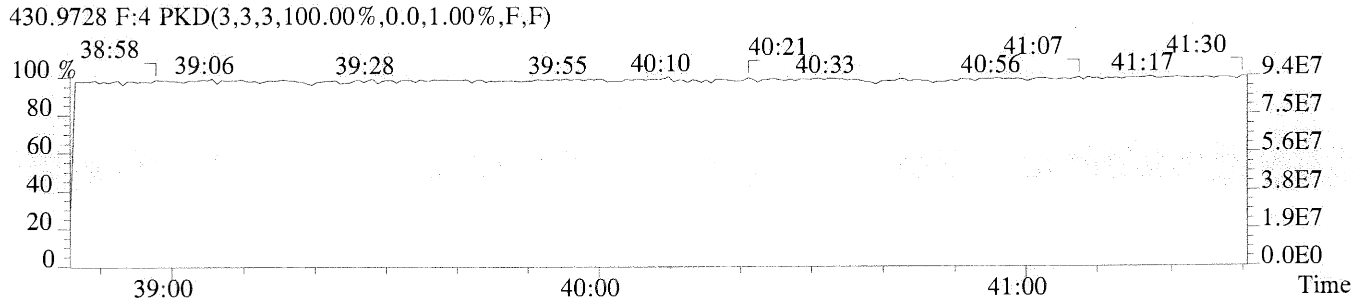
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.50%,F,T)



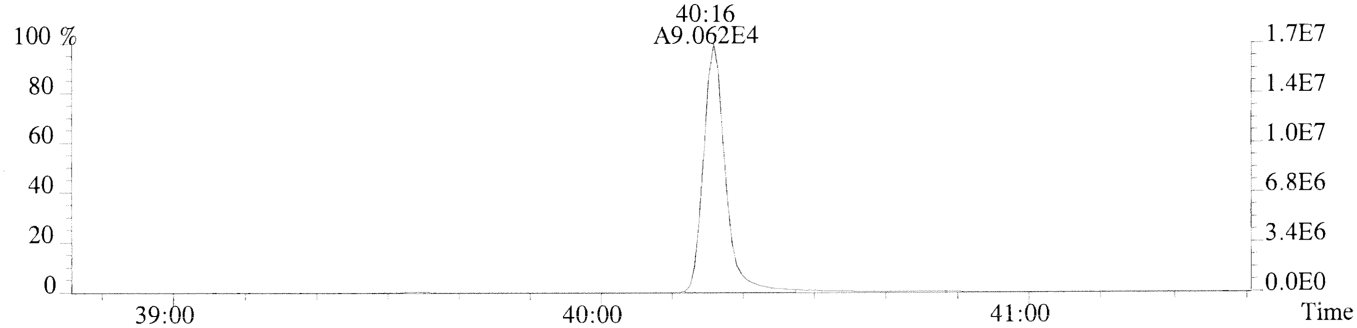
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



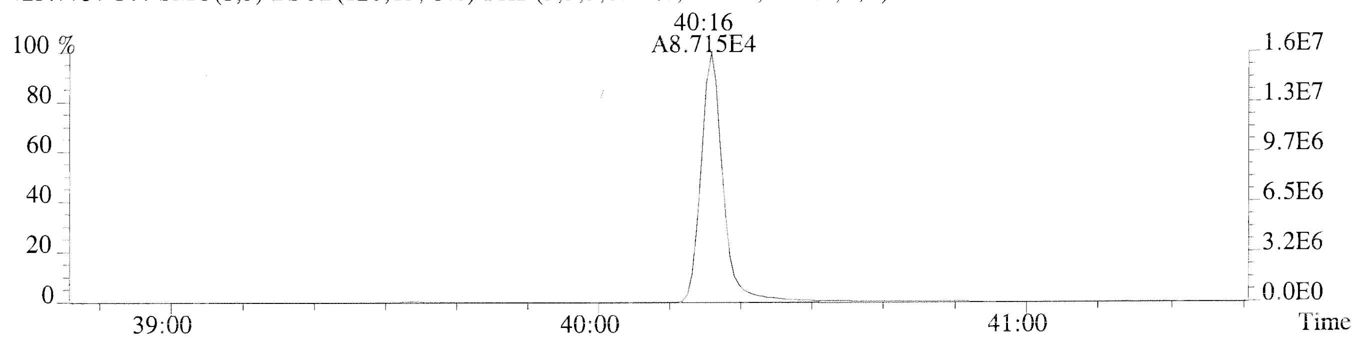
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



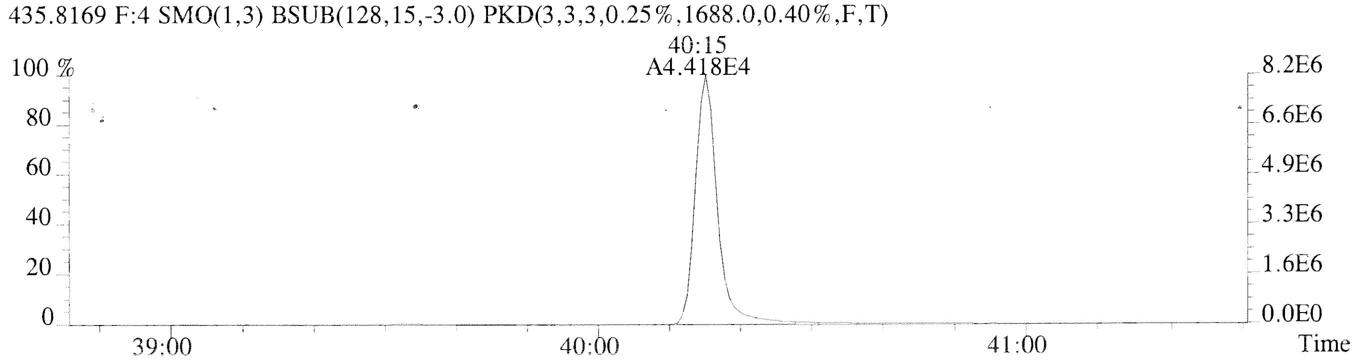
File:P169974 #1-250 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



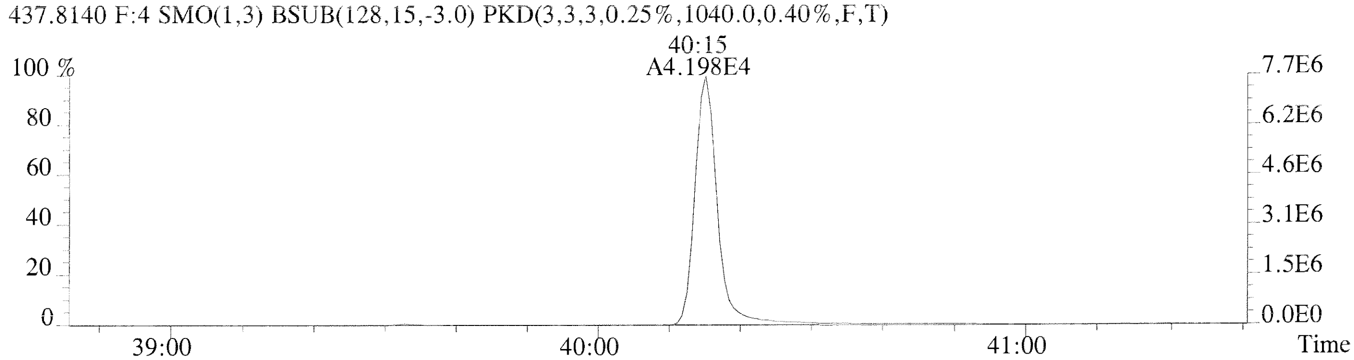
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



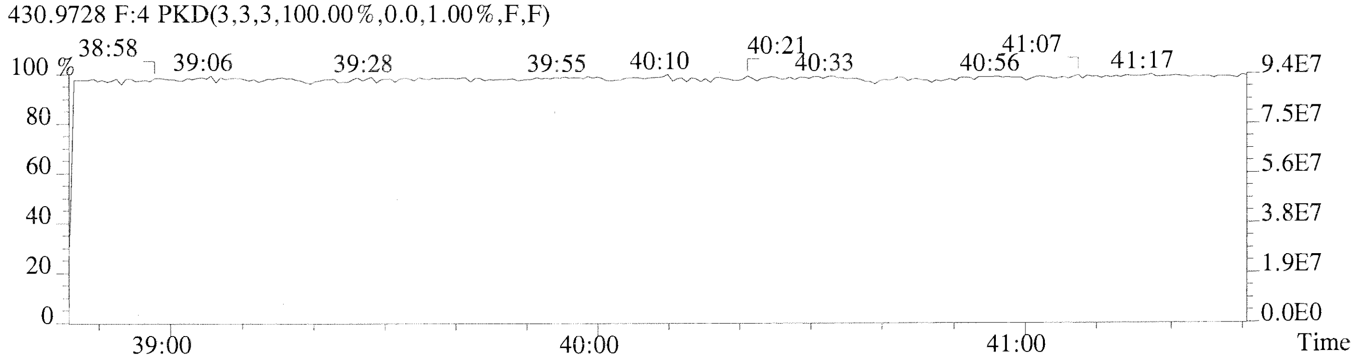
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)

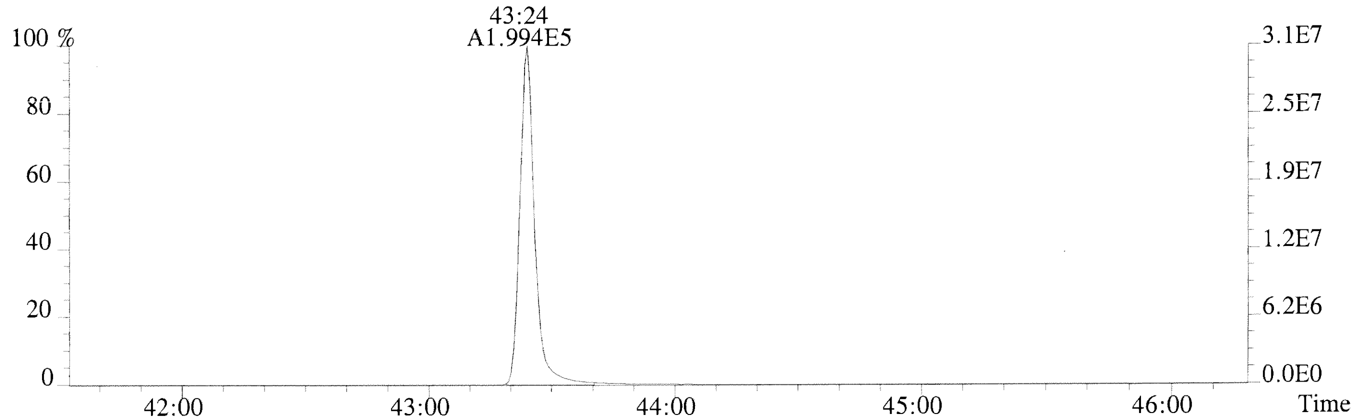


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

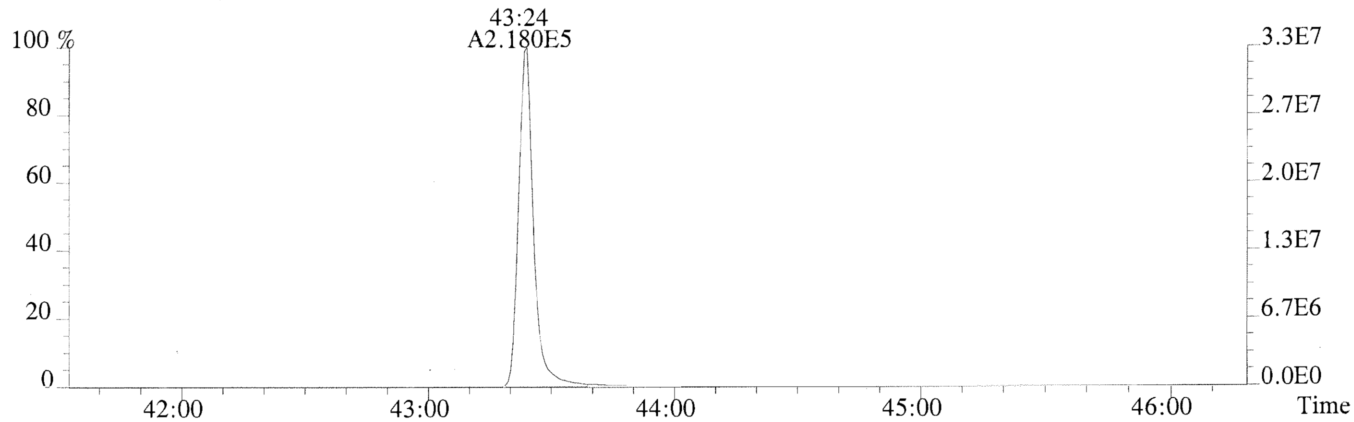


File:P169974 #1-438 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

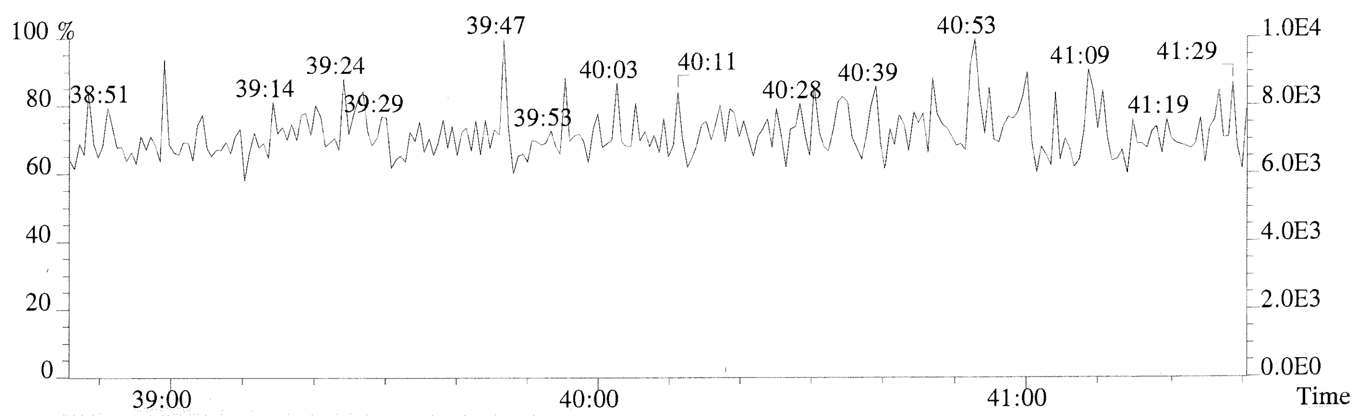
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



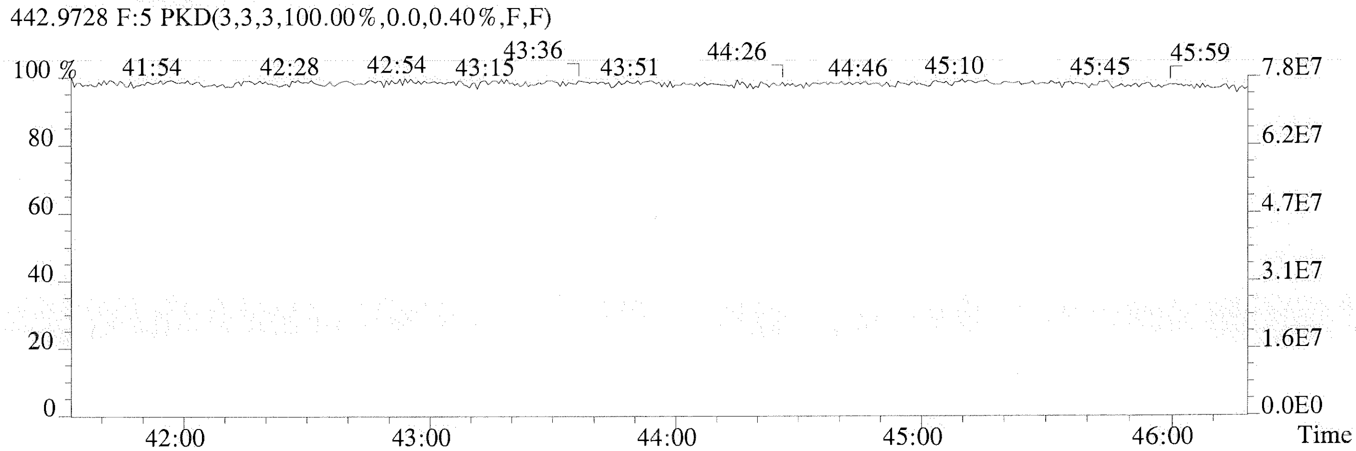
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



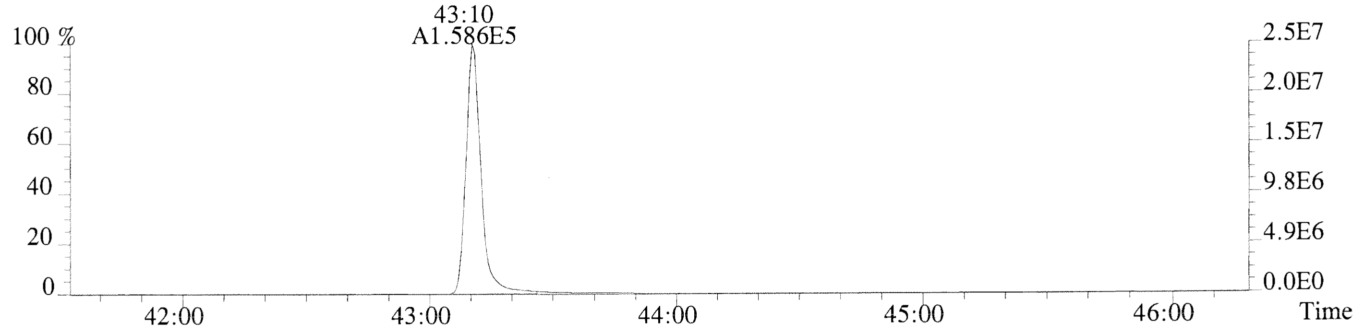
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



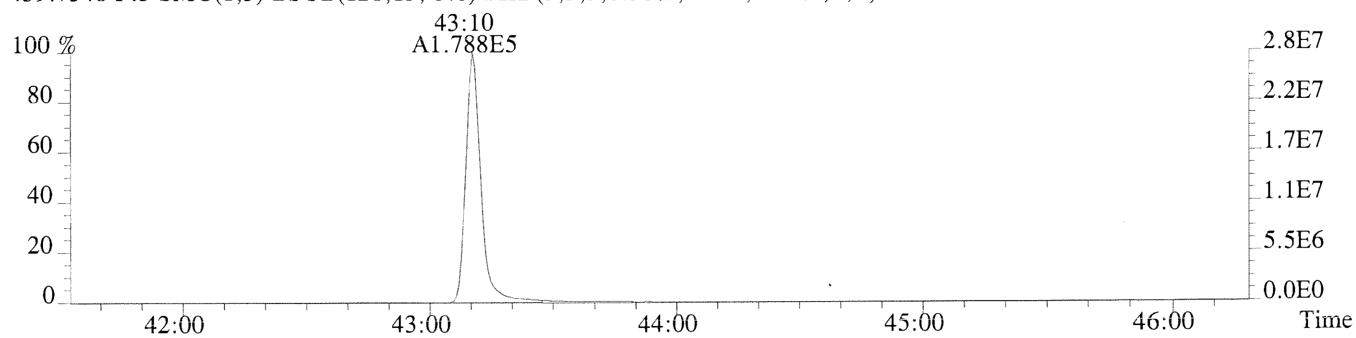
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



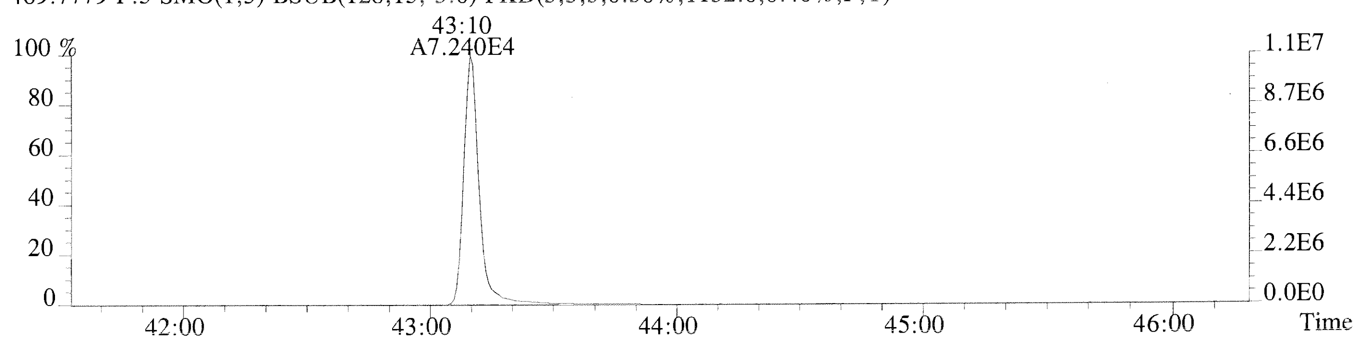
File:P169974 #1-438 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



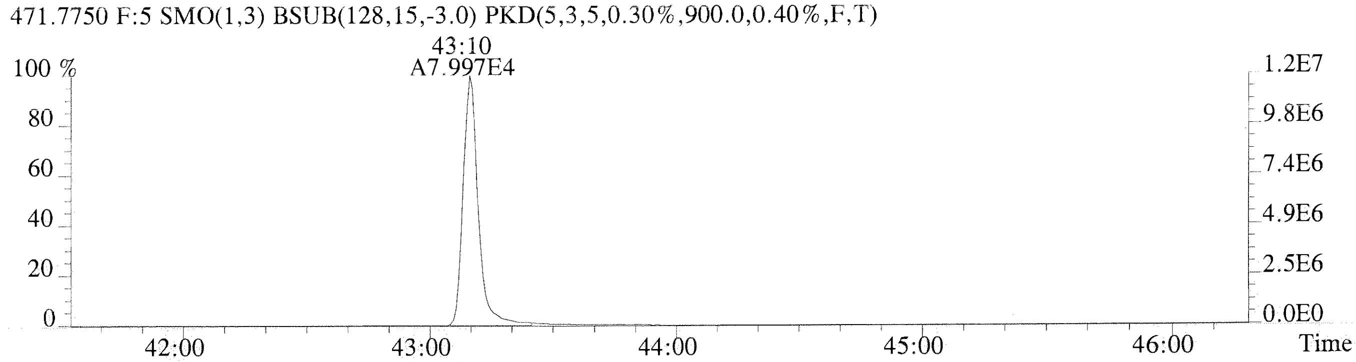
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



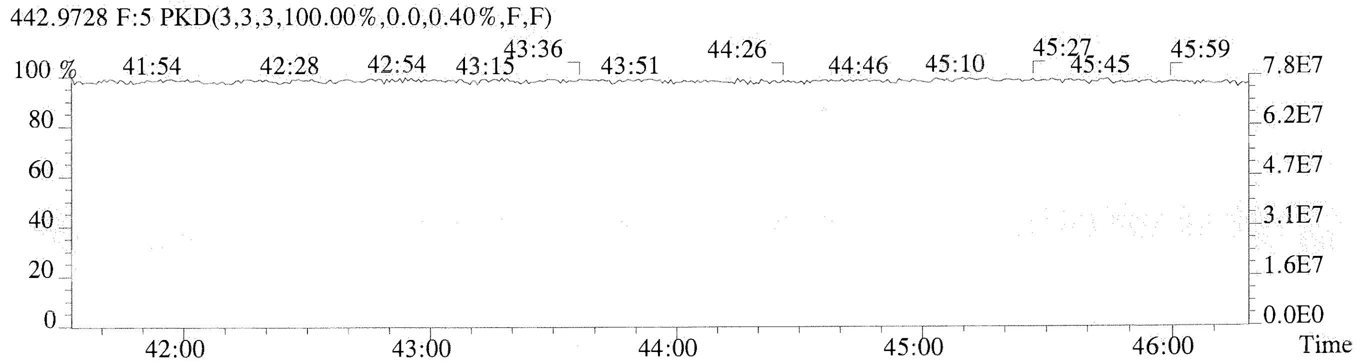
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66799

Run #6 Filename P169975 Samp: 1 Inj: 1 Acquired: 25-MAR-14 21:22:40
Processed: 26-MAR-14 10:01:28 Sample ID: ICAL HRCC5/CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:28	8.188e+04	1.055e+05	0.78	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	7.766e+05	4.971e+05	1.56	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	7.914e+05	5.056e+05	1.57	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	7.146e+05	5.738e+05	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	7.545e+05	6.106e+05	1.24	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	6.900e+05	5.567e+05	1.24	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	6.508e+05	5.243e+05	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	6.387e+05	6.158e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	5.649e+05	5.430e+05	1.04	yes	no	1.324
10	Unk	OCDF	43:24	9.816e+05	1.075e+06	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	6.336e+04	8.144e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	5.413e+05	3.436e+05	1.58	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	5.124e+05	4.111e+05	1.25	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	5.033e+05	4.016e+05	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	5.264e+05	4.195e+05	1.26	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	4.462e+05	4.247e+05	1.05	yes	no	1.016
17	Unk	OCDD	43:11	7.710e+05	8.645e+05	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	4.236e+04	5.314e+04	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	7.762e+04	5.068e+04	1.53	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	7.411e+04	4.801e+04	1.54	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.551e+04	6.835e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	3.796e+04	7.448e+04	0.51	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	3.665e+04	7.012e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	3.399e+04	6.512e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.760e+04	6.236e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	2.384e+04	5.416e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.962e+04	3.826e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	5.501e+04	3.479e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	4.546e+04	3.573e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.440e+04	4.276e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	4.441e+04	4.147e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:10	7.722e+04	8.549e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.973e+04	3.755e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:46	5.100e+04	4.065e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	1.487e+05				no	1.125

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66799

Run #6 Filename P169975 Samp: 1 Inj: 1 Acquired: 25-MAR-14 21:22:40
Processed: 26-MAR-14 08:20:301 LAB. ID: ICAL HRCC5/CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.79e+07	8.24e+02	2.2e+04	2.33e+07	2.75e+03	8.5e+03
2	1,2,3,7,8-PeCDF	1.53e+08	1.22e+03	1.3e+05	9.84e+07	2.28e+03	4.3e+04
3	2,3,4,7,8-PeCDF	1.64e+08	1.22e+03	1.4e+05	1.04e+08	2.28e+03	4.6e+04
4	1,2,3,4,7,8-HxCDF	1.55e+08	2.35e+03	6.6e+04	1.24e+08	2.10e+03	5.9e+04
5	1,2,3,6,7,8-HxCDF	1.61e+08	2.35e+03	6.8e+04	1.31e+08	2.10e+03	6.3e+04
6	2,3,4,6,7,8-HxCDF	1.51e+08	2.35e+03	6.4e+04	1.22e+08	2.10e+03	5.8e+04
7	1,2,3,7,8,9-HxCDF	1.37e+08	2.35e+03	5.8e+04	1.11e+08	2.10e+03	5.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.30e+08	2.47e+04	5.3e+03	1.26e+08	2.03e+04	6.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.08e+08	2.47e+04	4.4e+03	1.04e+08	2.03e+04	5.1e+03
10	OCDF	1.64e+08	1.15e+03	1.4e+05	1.80e+08	1.61e+03	1.1e+05
11	2,3,7,8-TCDD	1.45e+07	1.45e+03	1.0e+04	1.87e+07	1.56e+03	1.2e+04
12	1,2,3,7,8-PeCDD	1.12e+08	1.41e+03	7.9e+04	7.08e+07	8.96e+02	7.9e+04
13	1,2,3,4,7,8-HxCDD	1.14e+08	8.72e+02	1.3e+05	9.09e+07	1.51e+03	6.0e+04
14	1,2,3,6,7,8-HxCDD	1.06e+08	8.72e+02	1.2e+05	8.54e+07	1.51e+03	5.7e+04
15	1,2,3,7,8,9-HxCDD	1.14e+08	8.72e+02	1.3e+05	9.12e+07	1.51e+03	6.0e+04
16	1,2,3,4,6,7,8-HpCDD	8.92e+07	2.64e+03	3.4e+04	8.45e+07	1.13e+03	7.5e+04
17	OCDD	1.27e+08	1.18e+03	1.1e+05	1.41e+08	1.09e+03	1.3e+05
18	13C-2,3,7,8-TCDF	9.42e+06	1.72e+03	5.5e+03	1.18e+07	1.63e+03	7.3e+03
19	13C-1,2,3,7,8-PeCDF	1.50e+07	8.88e+02	1.7e+04	9.80e+06	1.01e+03	9.7e+03
20	13C-2,3,4,7,8-PeCDF	1.50e+07	8.88e+02	1.7e+04	9.64e+06	1.01e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.67e+06	1.67e+03	4.6e+03	1.46e+07	1.75e+03	8.3e+03
22	13C-1,2,3,6,7,8-HxCDF	7.97e+06	1.67e+03	4.8e+03	1.58e+07	1.75e+03	9.0e+03
23	13C-2,3,4,6,7,8-HxCDF	7.93e+06	1.67e+03	4.7e+03	1.52e+07	1.75e+03	8.7e+03
24	13C-1,2,3,7,8,9-HxCDF	7.01e+06	1.67e+03	4.2e+03	1.33e+07	1.75e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.54e+06	3.09e+03	1.8e+03	1.25e+07	3.97e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.50e+06	3.09e+03	1.5e+03	1.02e+07	3.97e+03	2.6e+03
27	13C-2,3,7,8-TCDD	6.83e+06	3.83e+03	1.8e+03	8.75e+06	1.57e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	1.11e+07	1.32e+03	8.4e+03	6.92e+06	8.68e+02	8.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.00e+07	1.23e+03	8.2e+03	7.76e+06	1.40e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.15e+07	1.23e+03	9.3e+03	9.04e+06	1.40e+03	6.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.70e+06	1.57e+03	5.5e+03	8.14e+06	8.16e+02	1.0e+04
32	13C-OCDD	1.23e+07	1.36e+03	9.0e+03	1.37e+07	1.03e+03	1.3e+04
33	13C-1,2,3,4-TCDD	6.73e+06	3.83e+03	1.8e+03	8.40e+06	1.57e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.08e+07	1.23e+03	8.7e+03	8.66e+06	1.40e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	3.42e+07	1.85e+03	1.8e+04			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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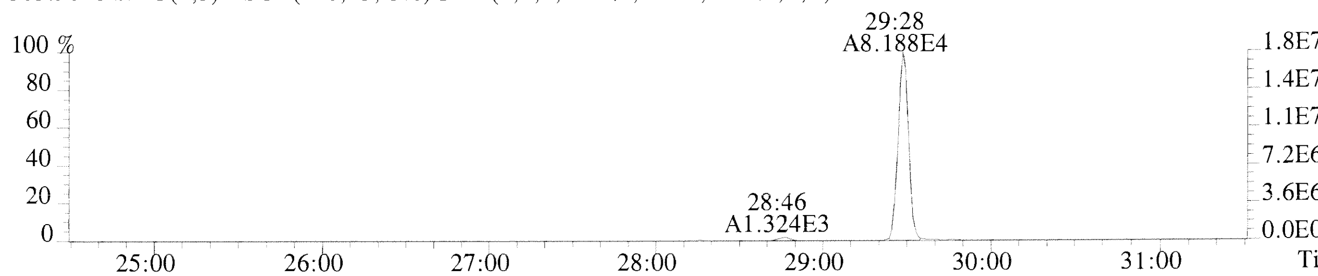
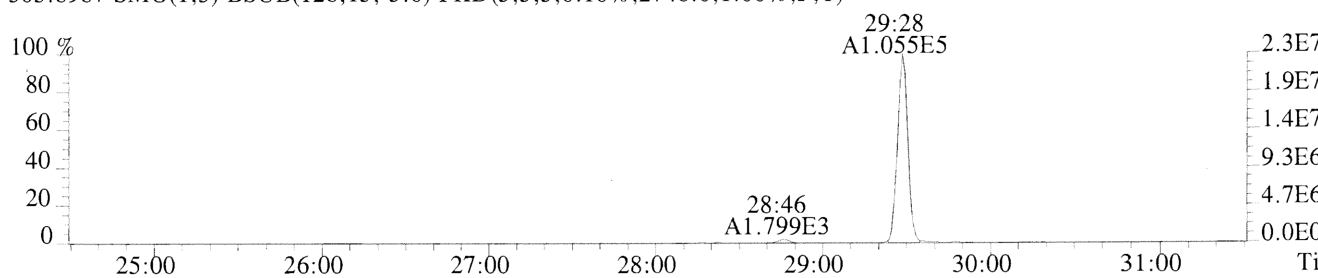
Office:(713)266-1599. Fax:(713)266-0130

File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

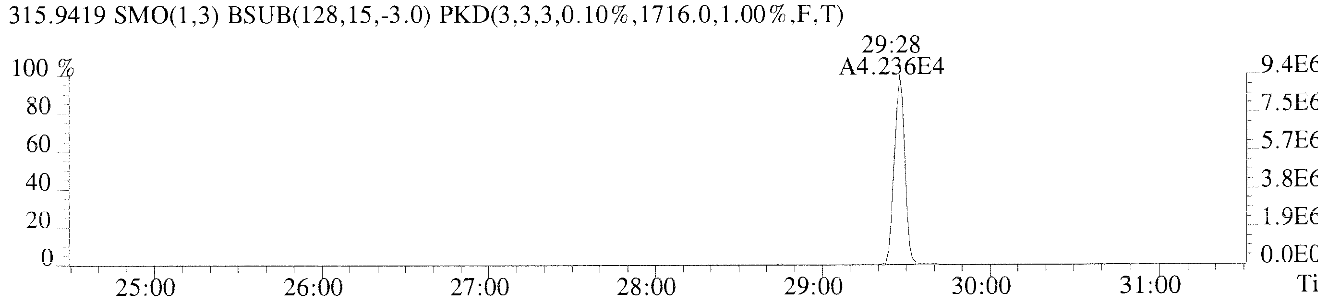
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



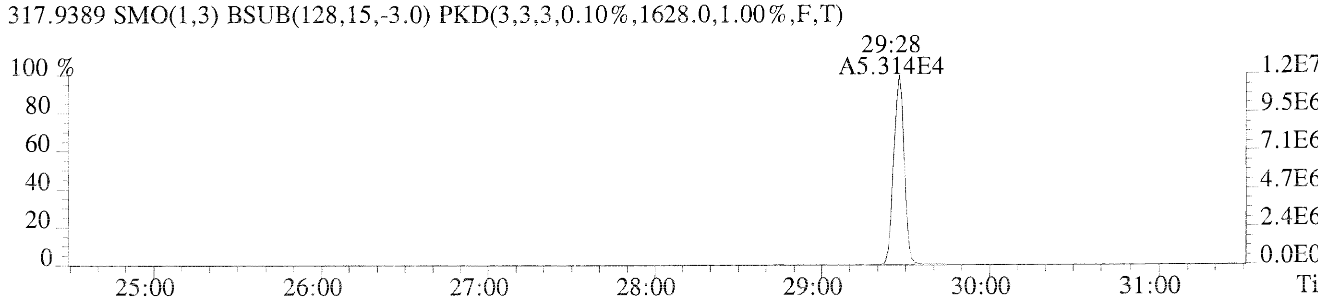
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2748.0,1.00%,F,T)



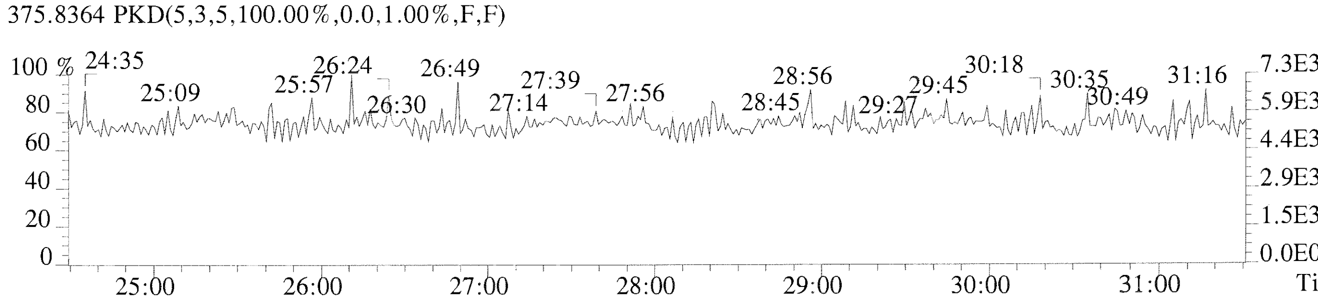
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



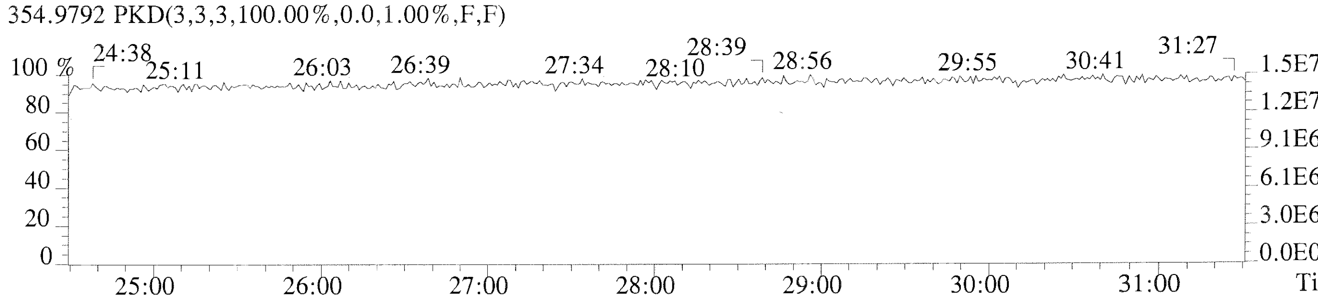
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

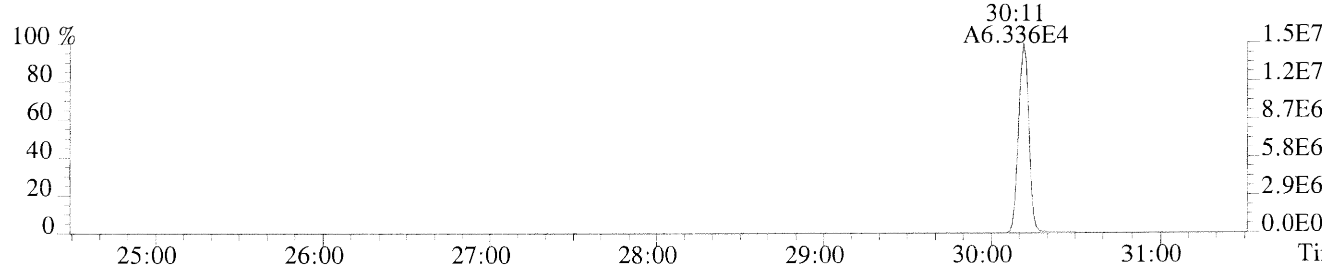


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

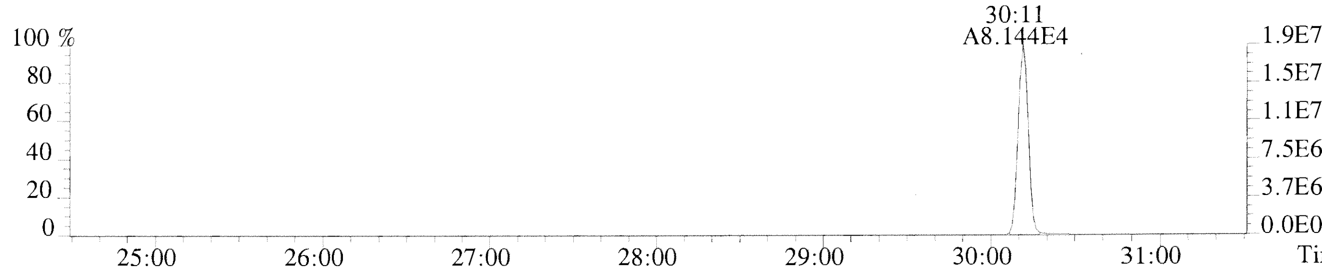


File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

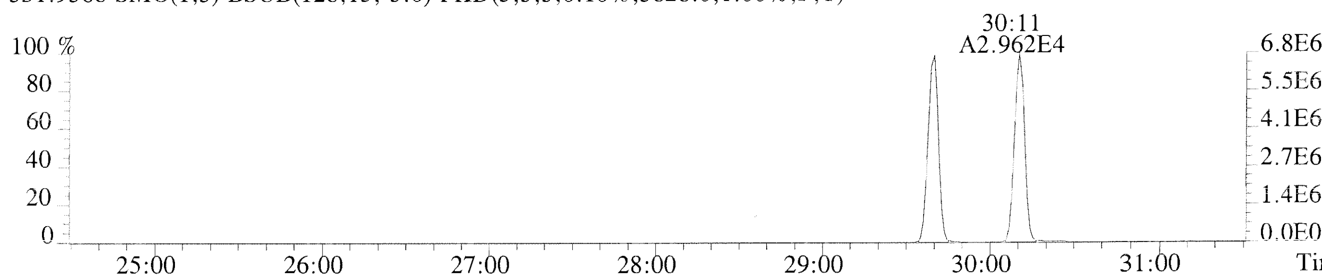
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



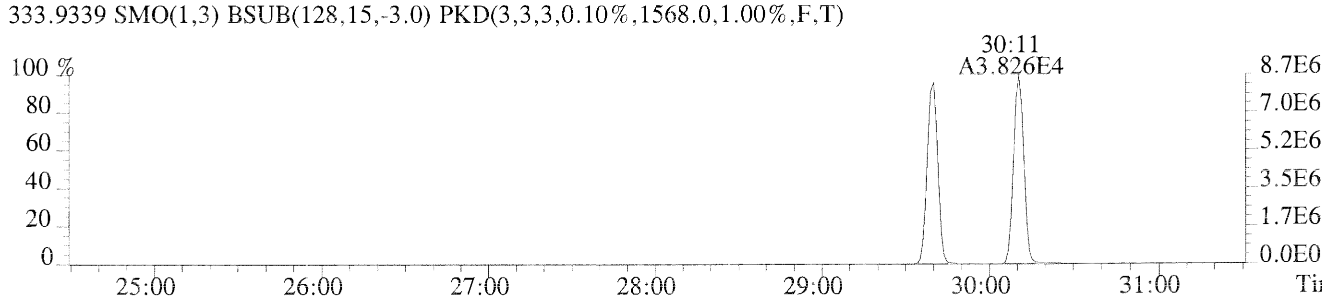
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



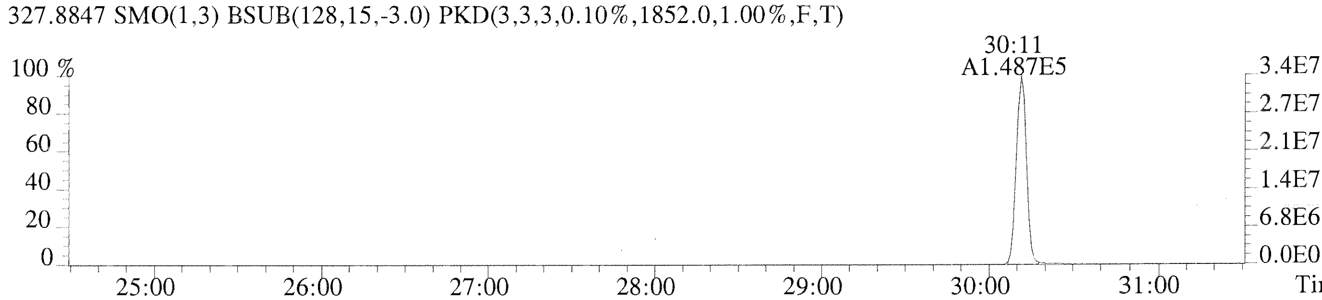
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3828.0,1.00%,F,T)



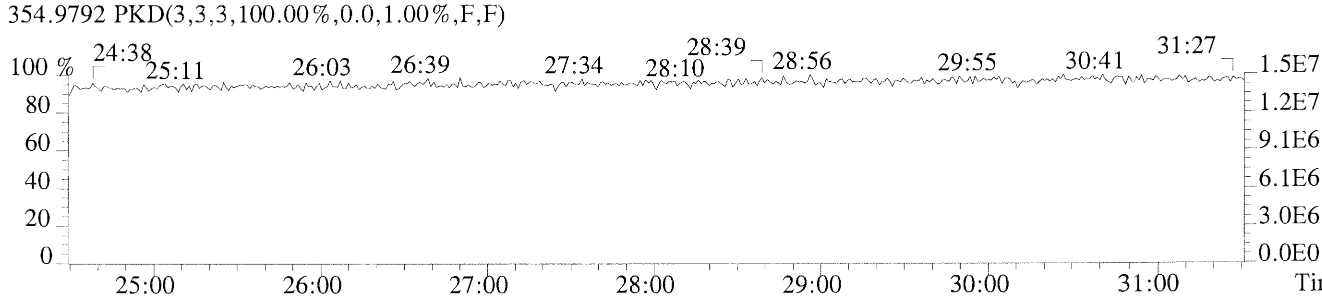
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)

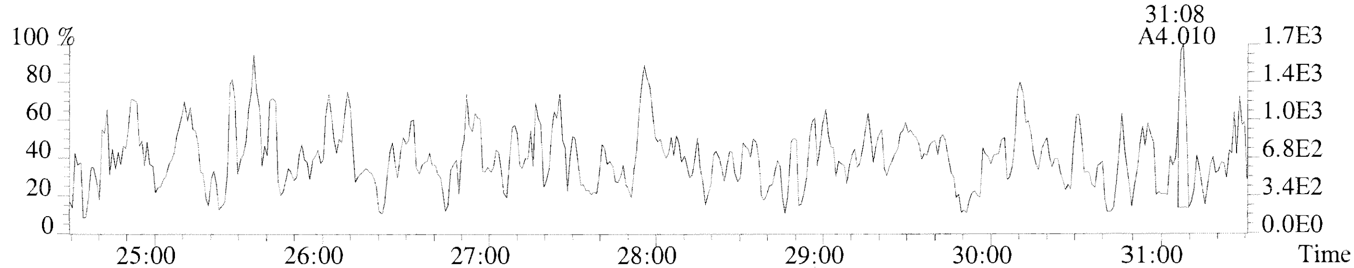


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

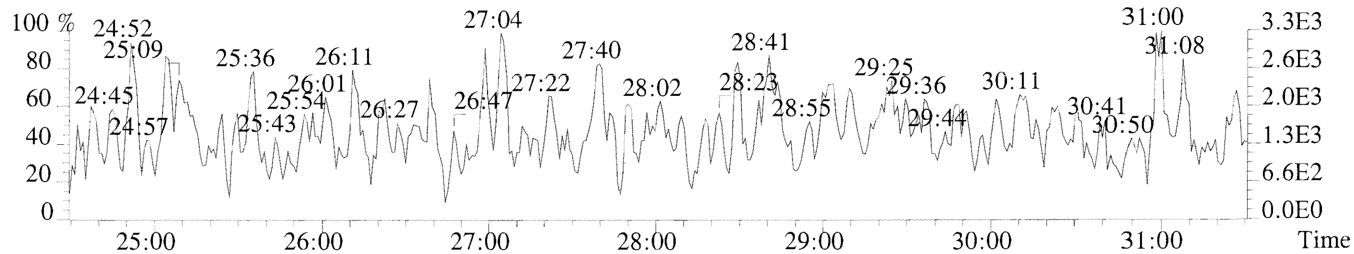


File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

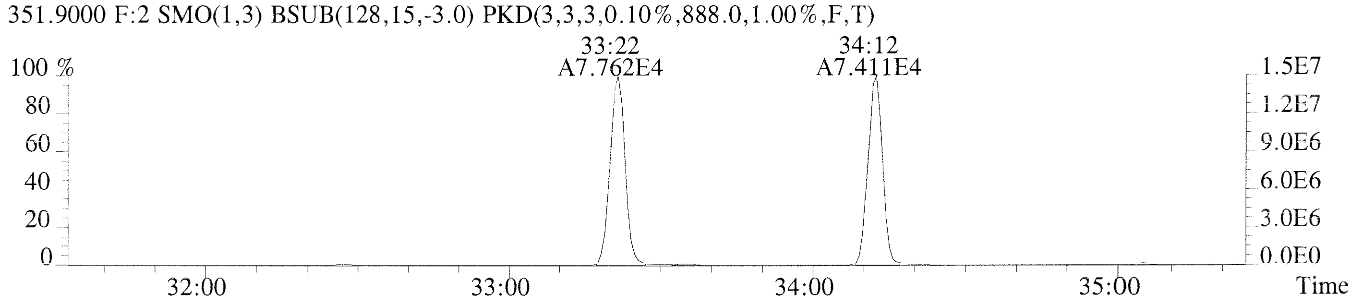
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



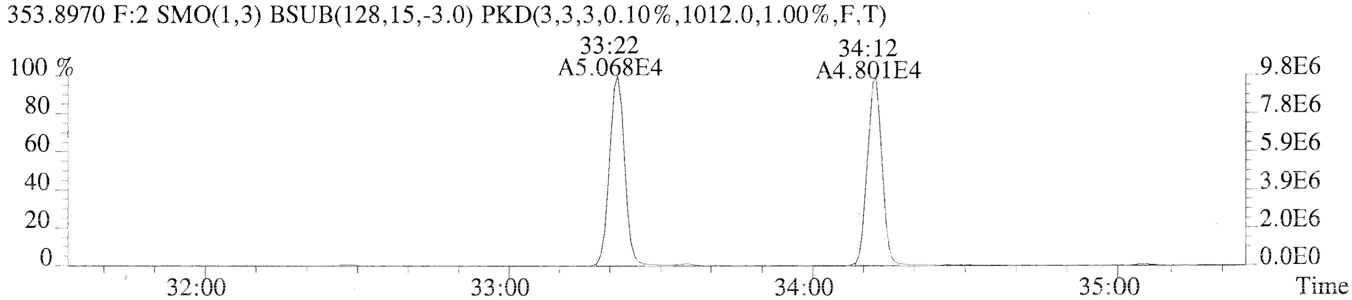
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



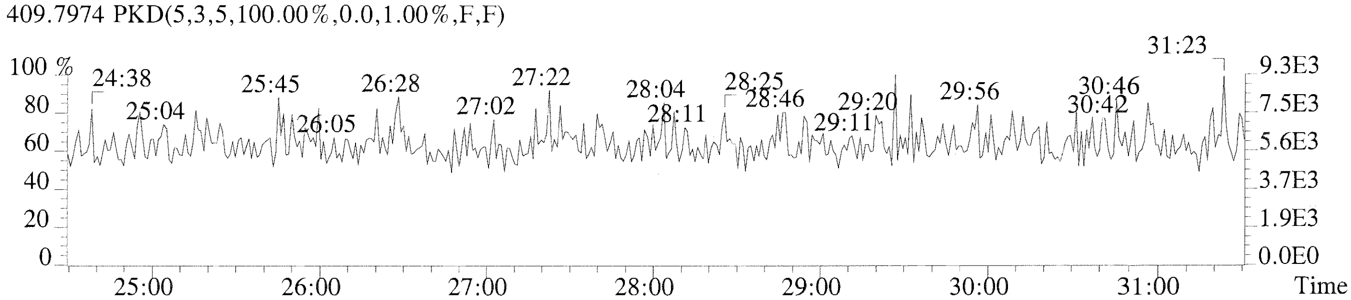
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



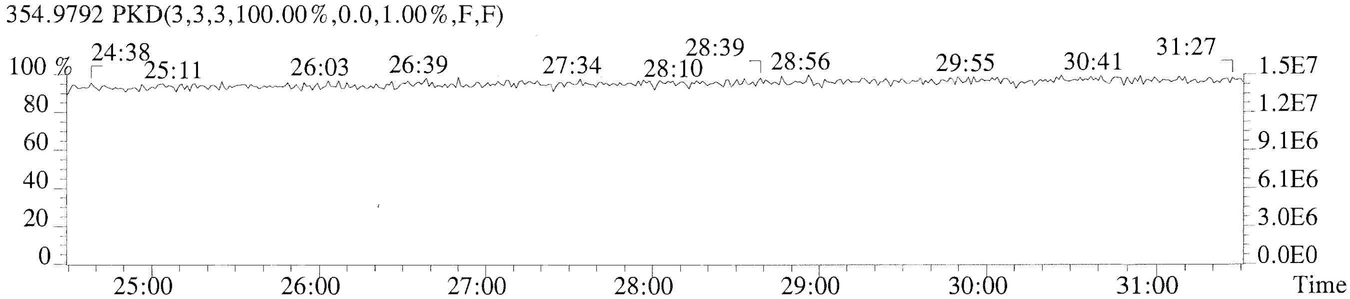
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

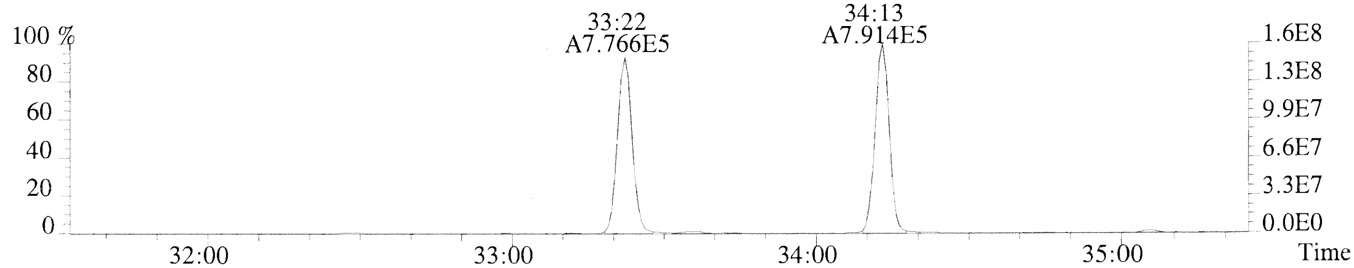


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

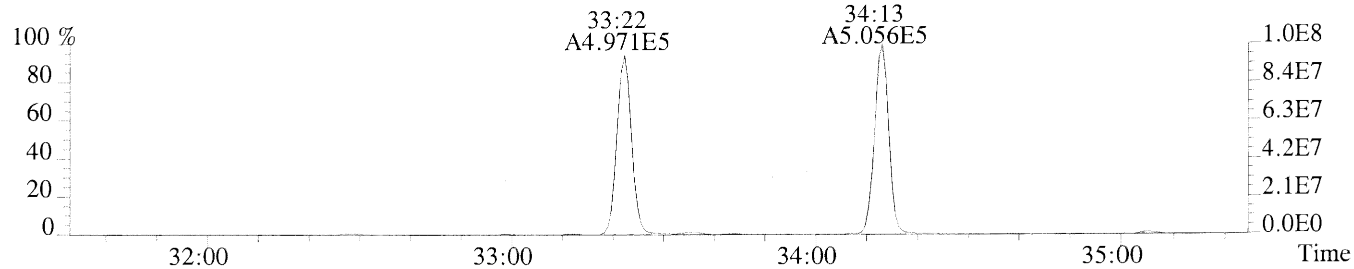


File:P169975 #1-351 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

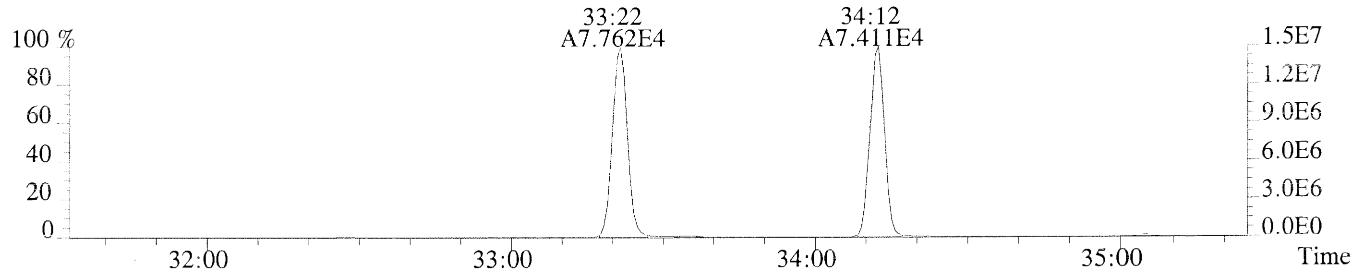
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



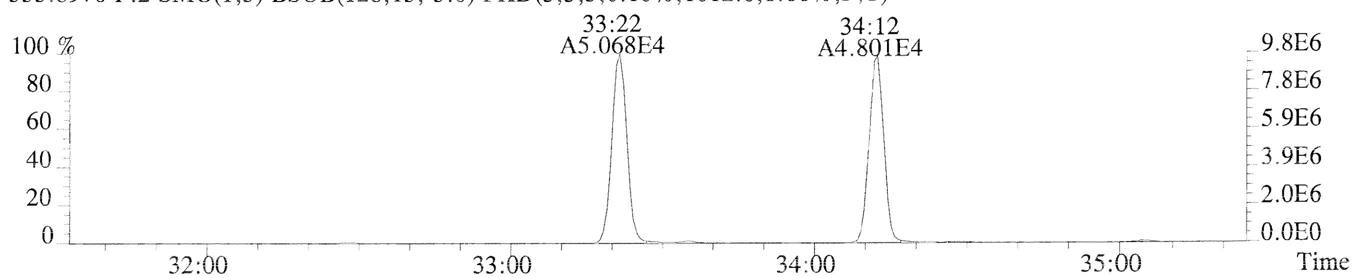
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



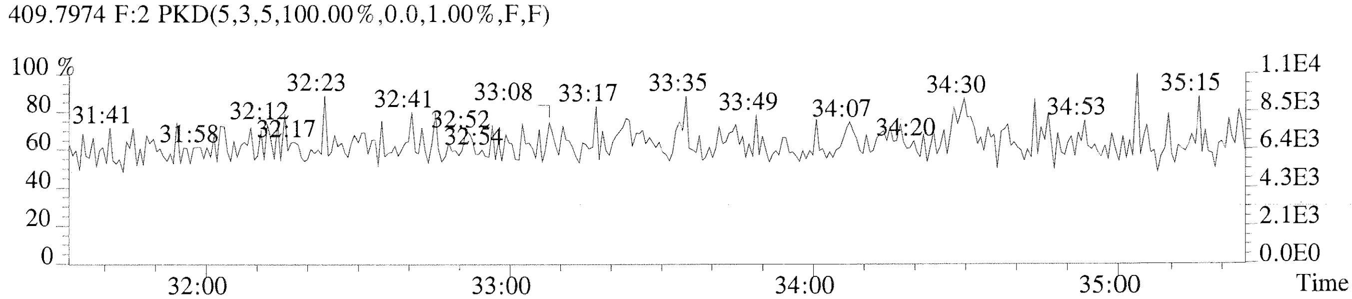
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



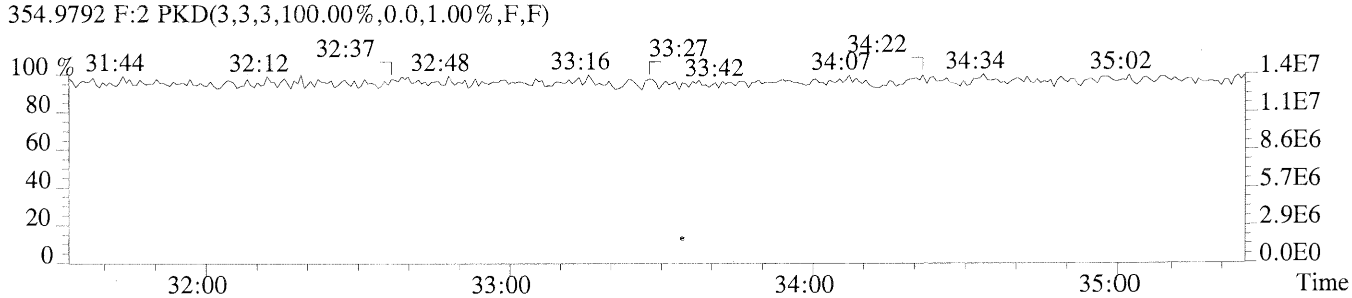
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



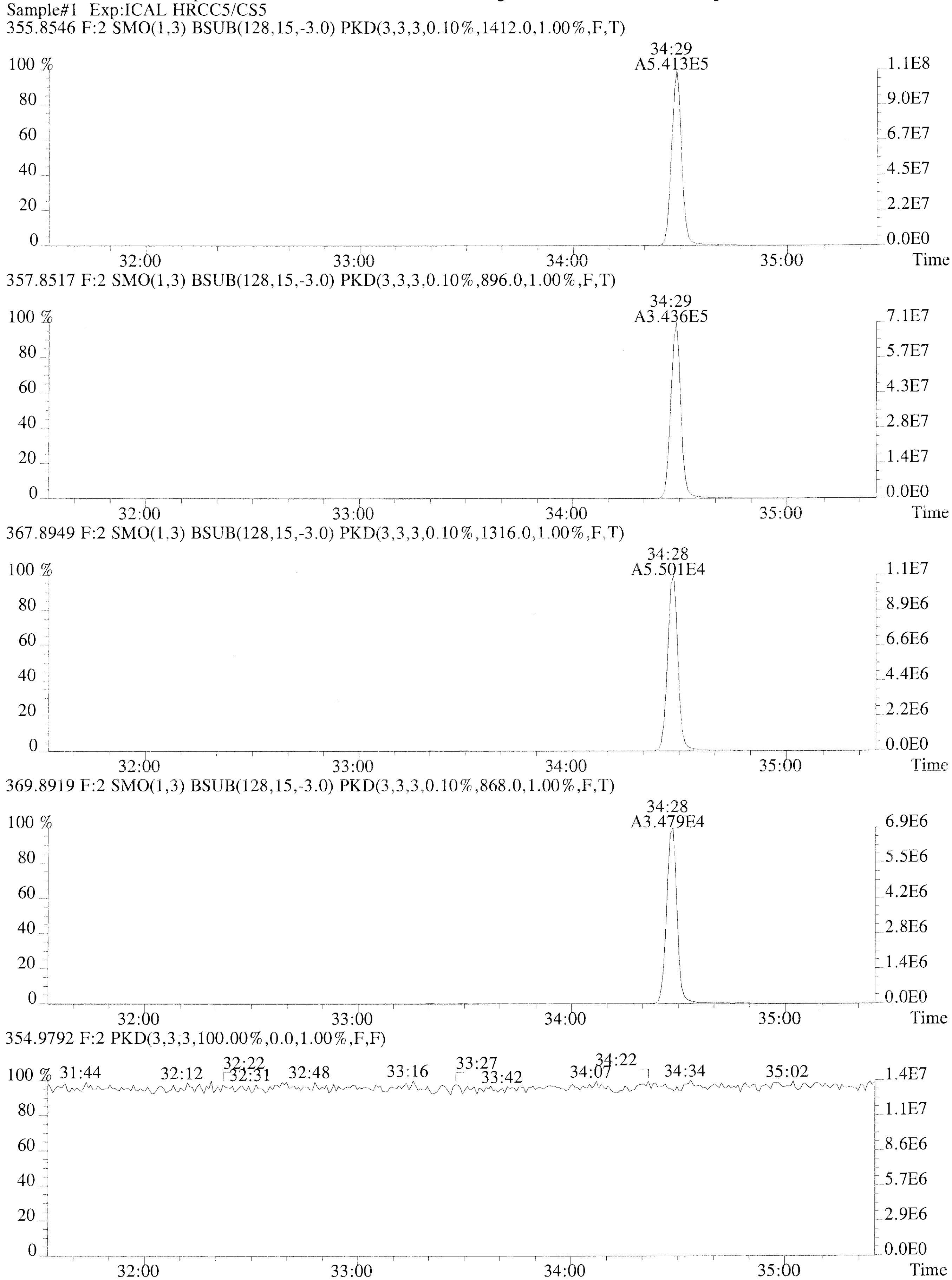
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



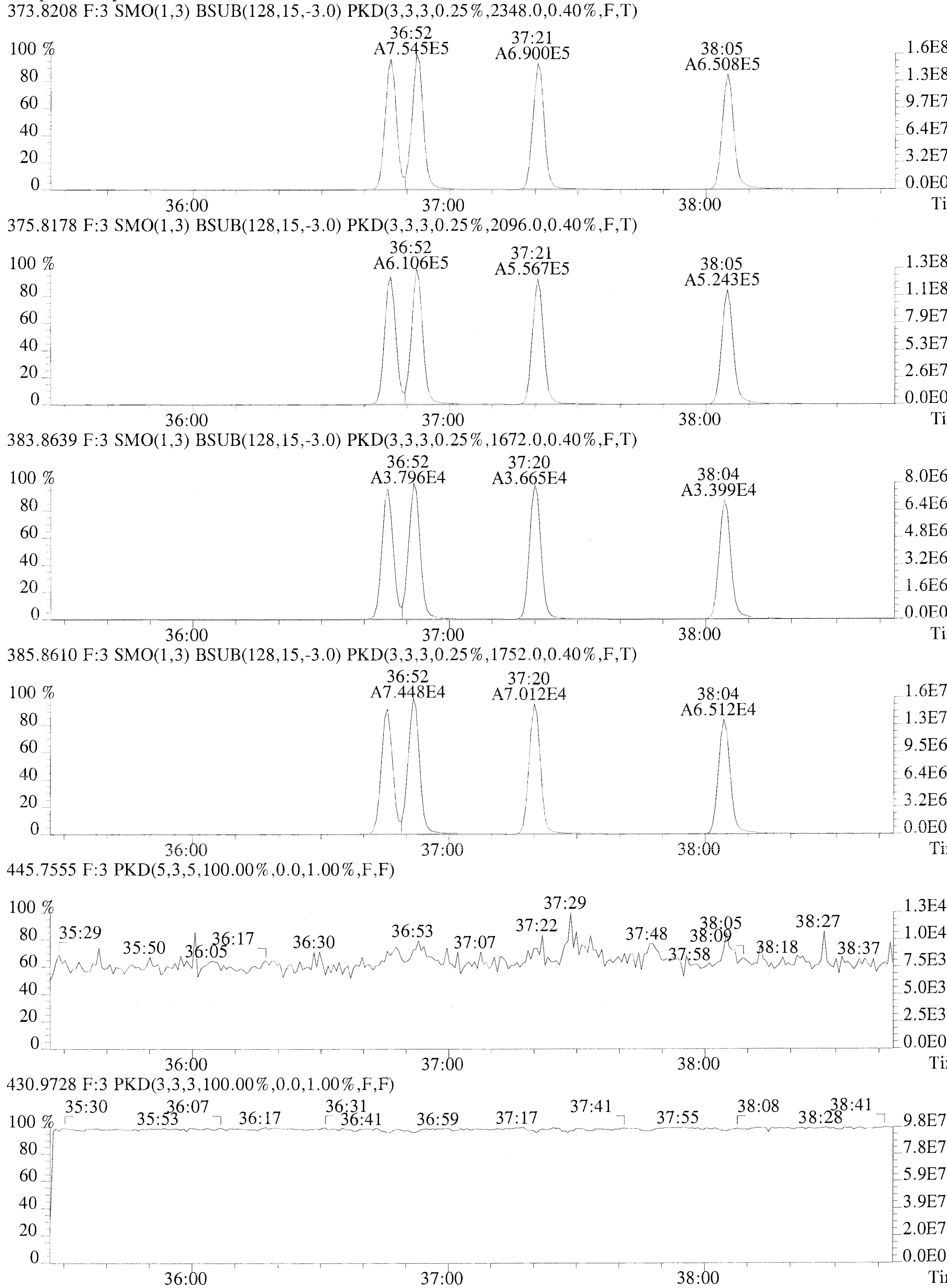
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169975 #1-351 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

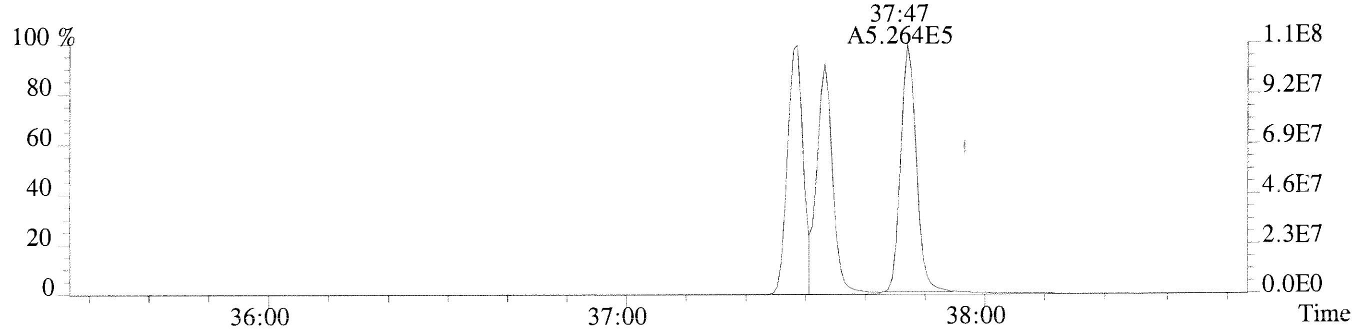


File:P169975 #1-298 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

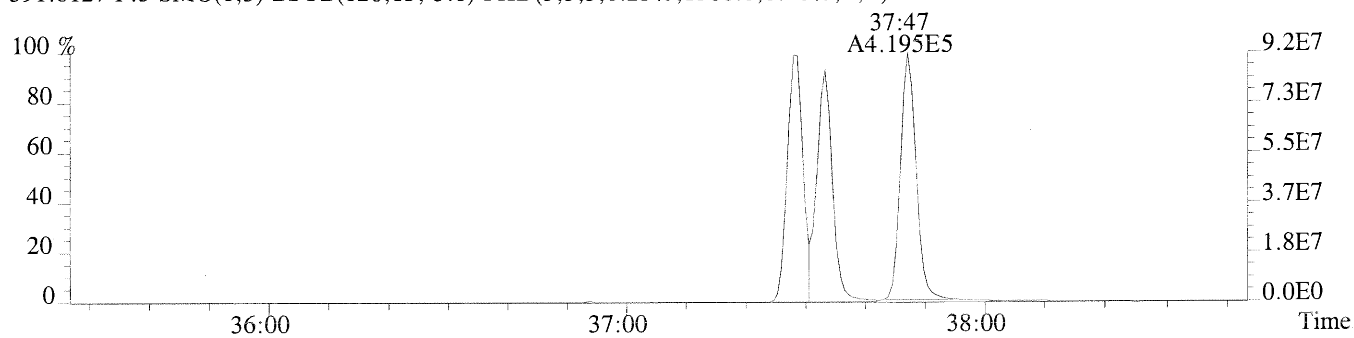


File:P169975 #1-298 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

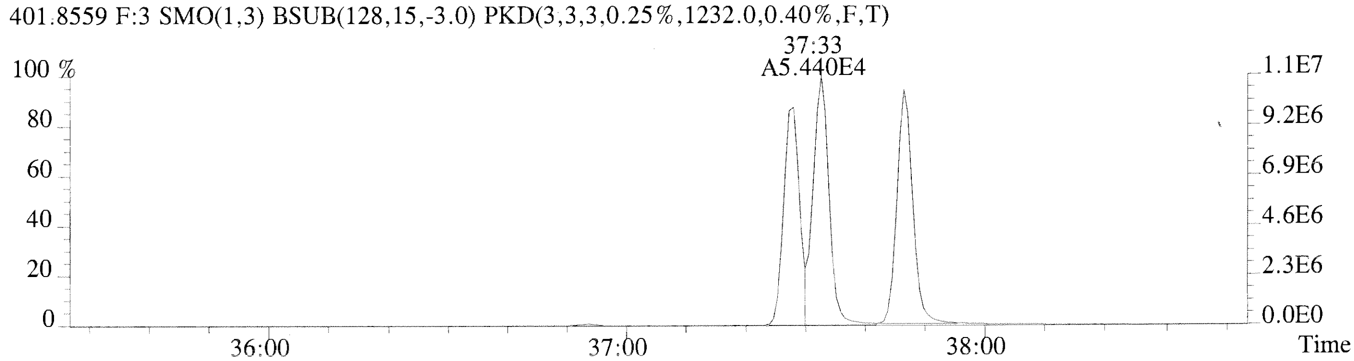
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



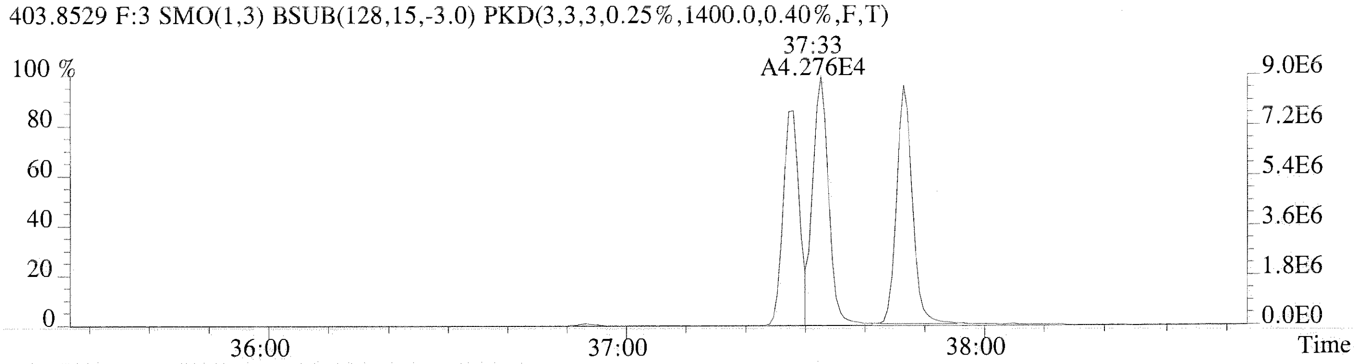
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.40%,F,T)



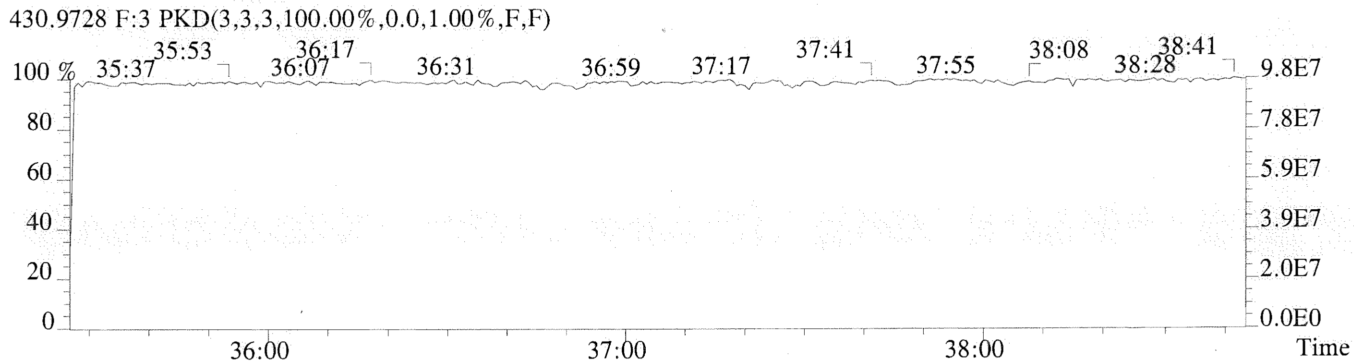
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



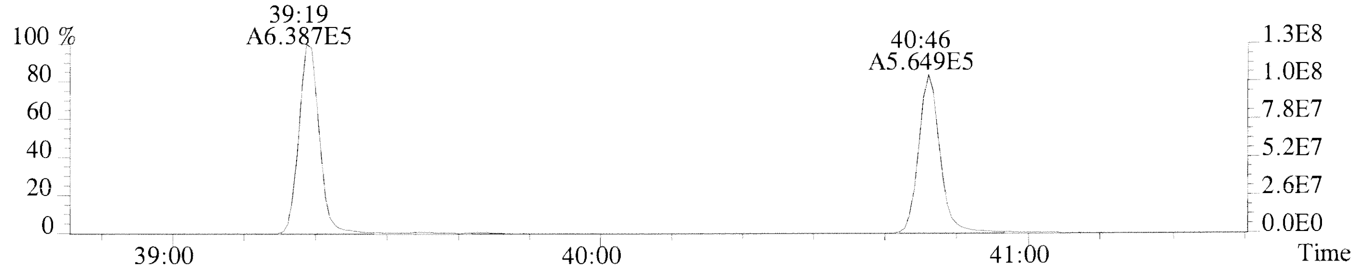
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



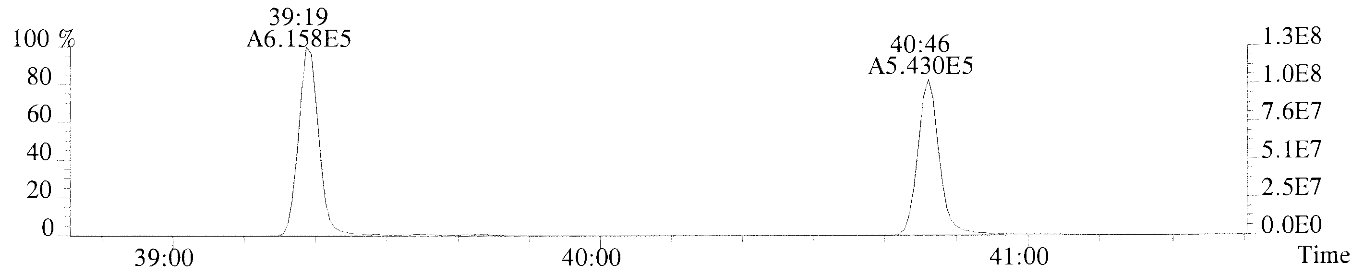
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



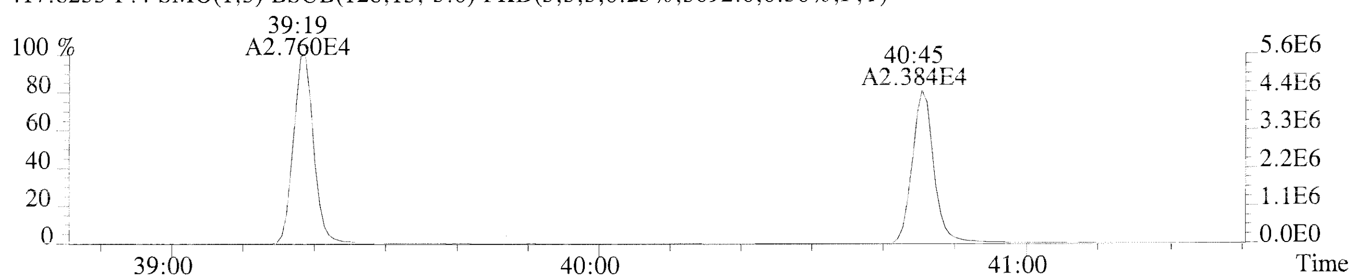
File:P169975 #1-250 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24704.0,0.50%,F,T)



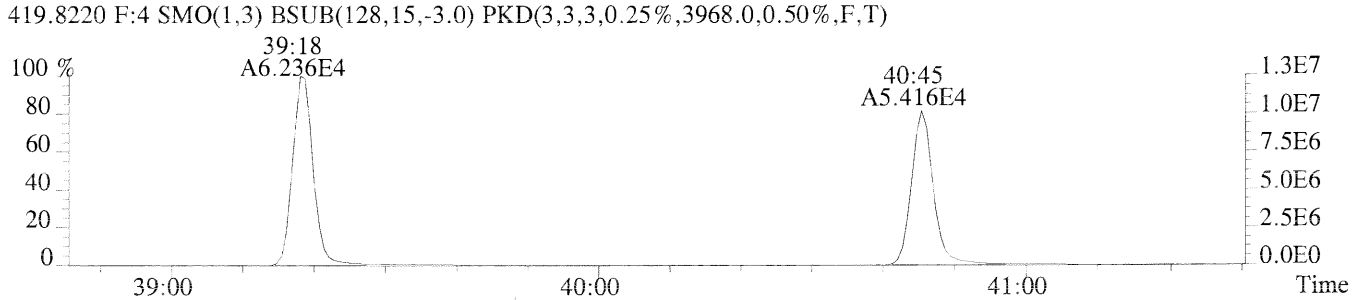
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20332.0,0.50%,F,T)



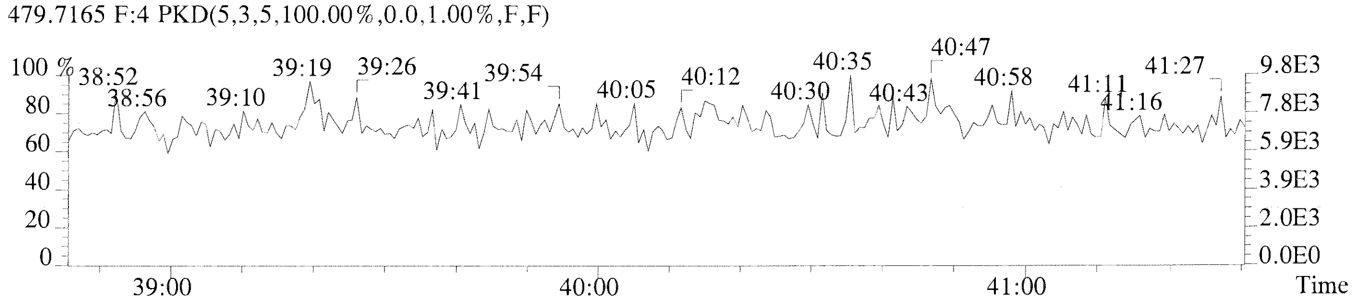
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3092.0,0.50%,F,T)



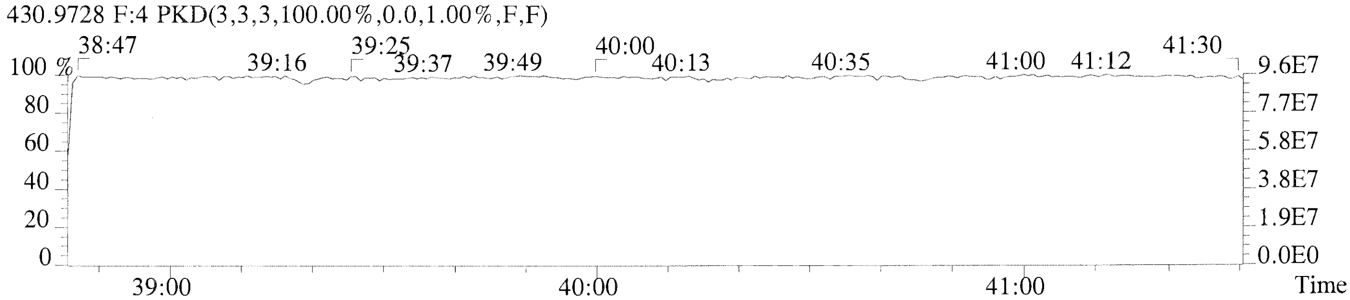
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3968.0,0.50%,F,T)



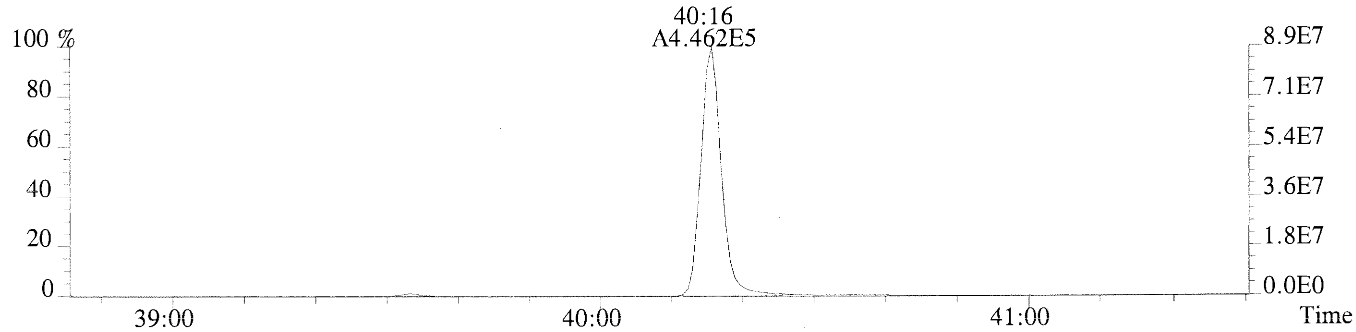
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



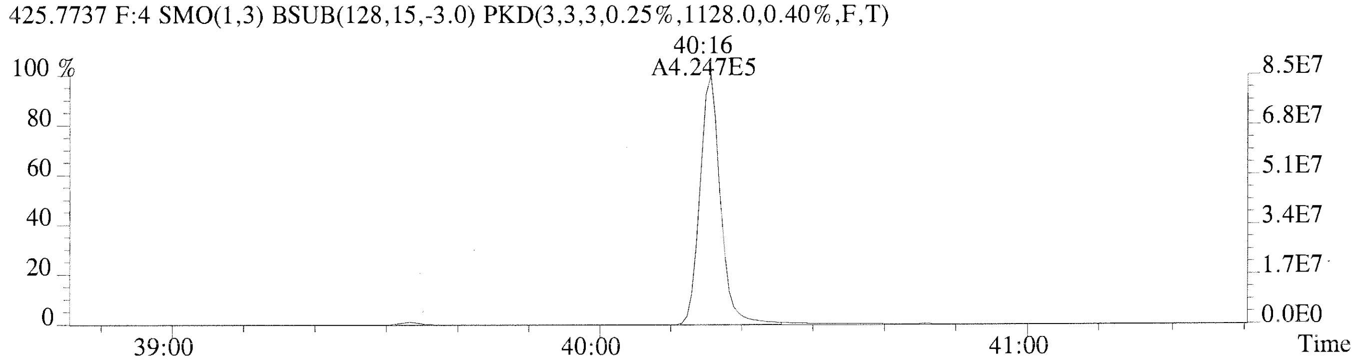
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



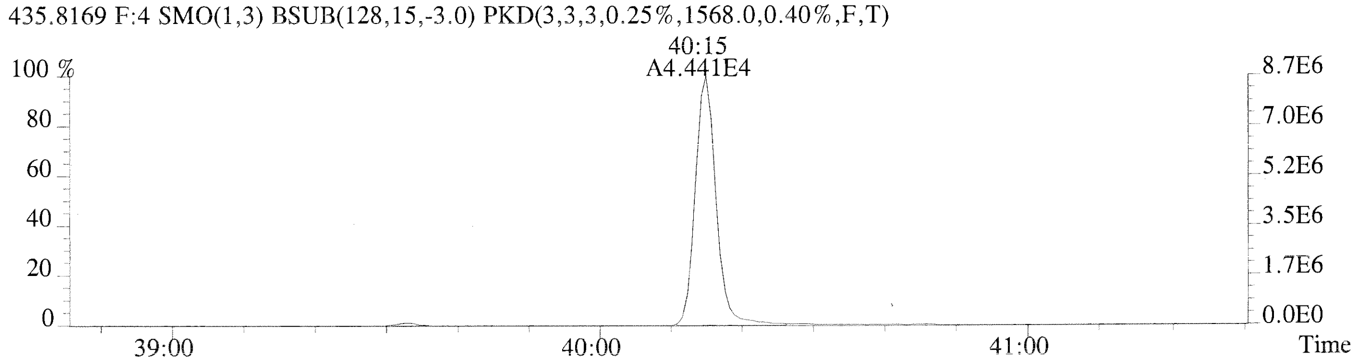
File:P169975 #1-250 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2640.0,0.40%,F,T)



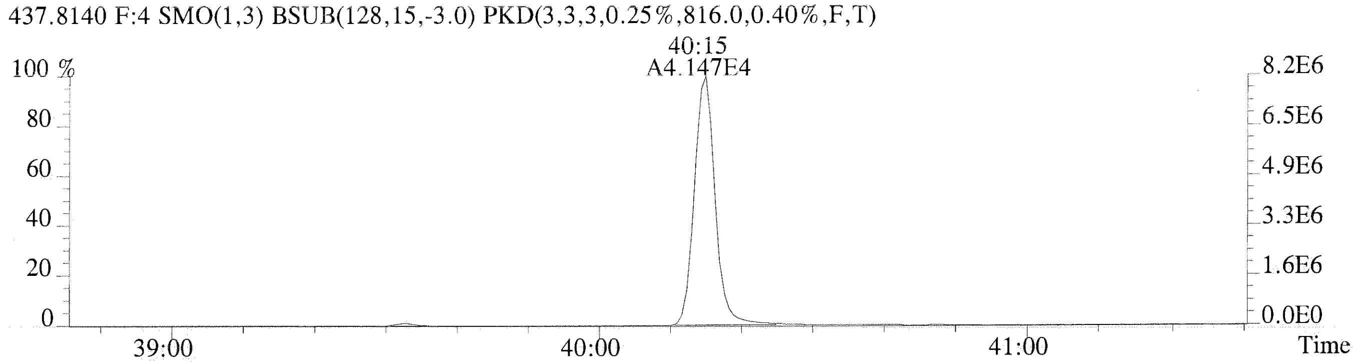
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



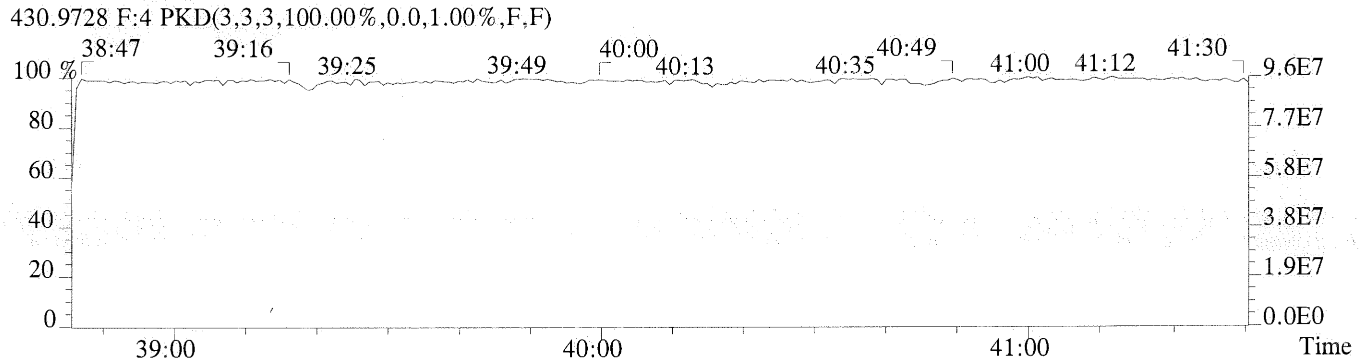
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



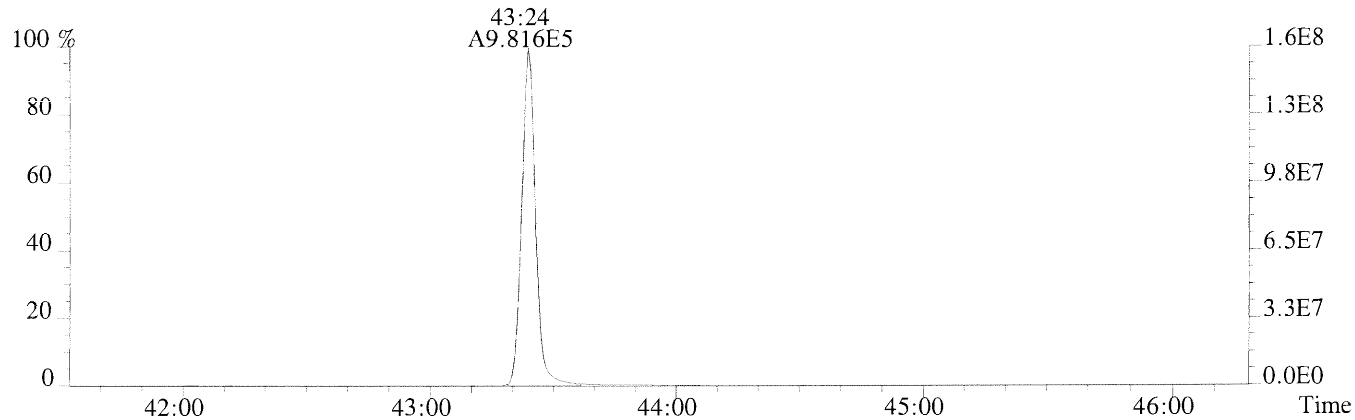
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)

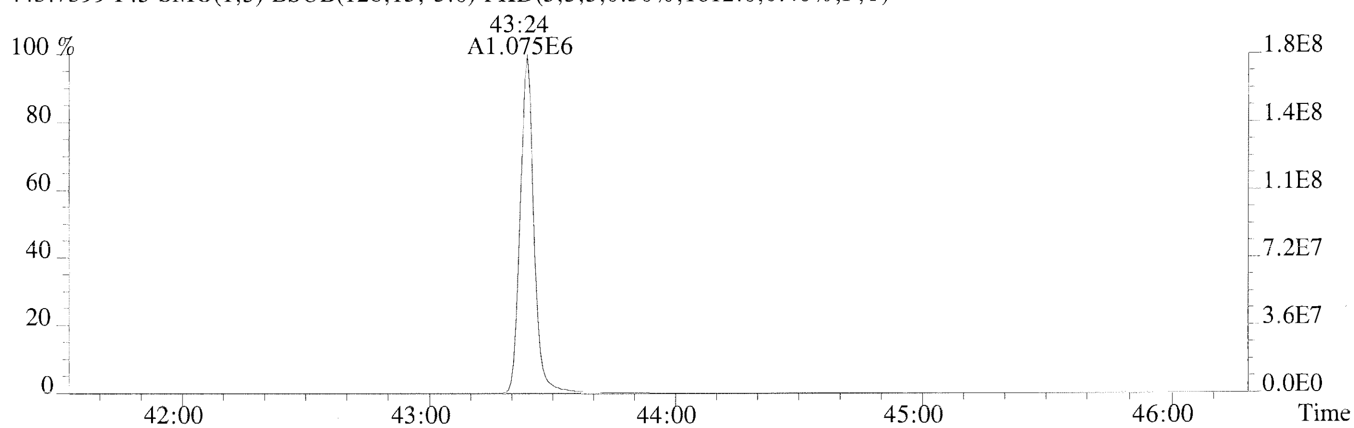


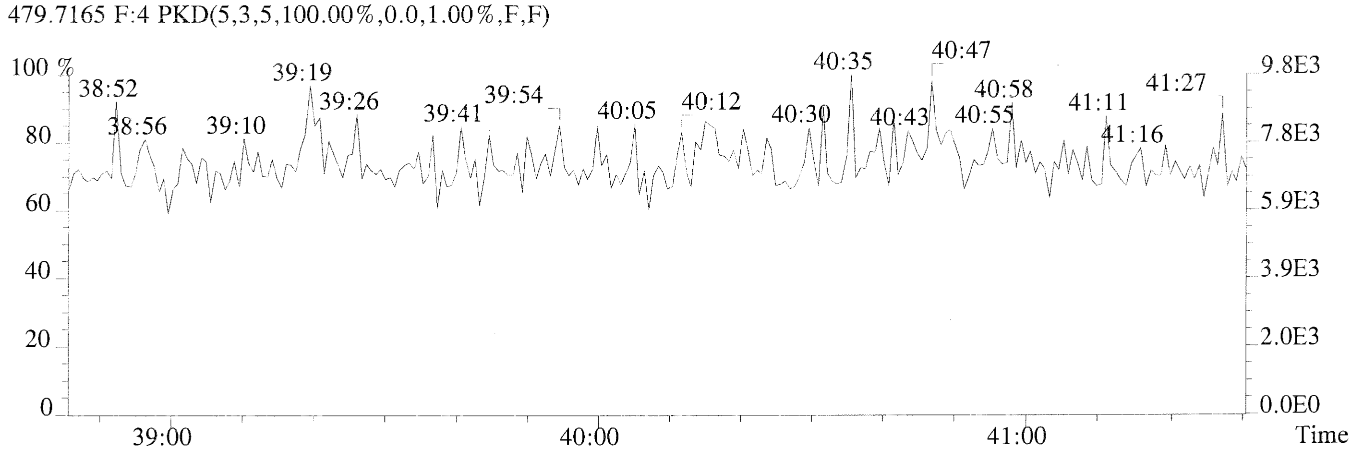
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

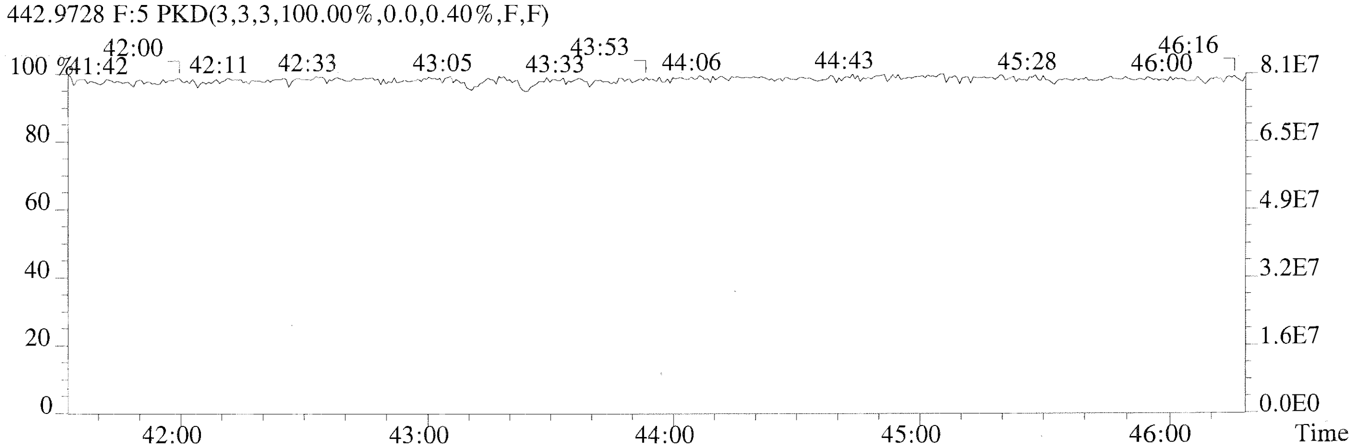


File:P169975 #1-438 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

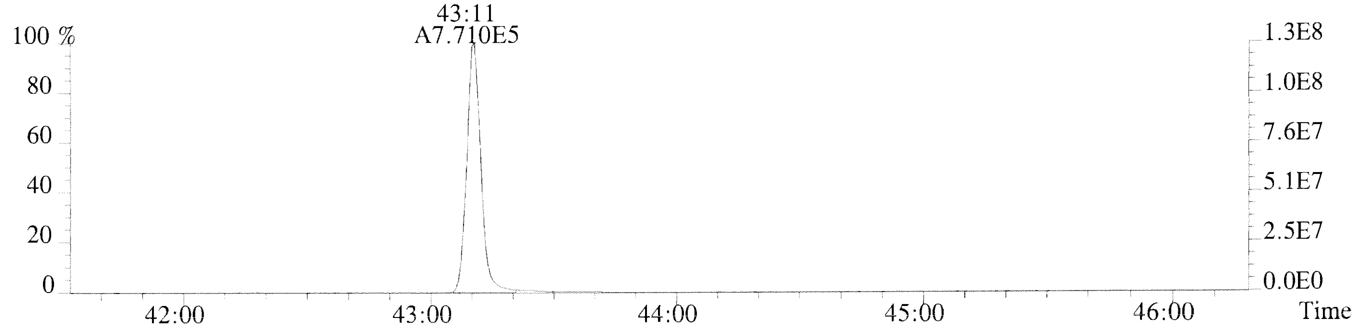




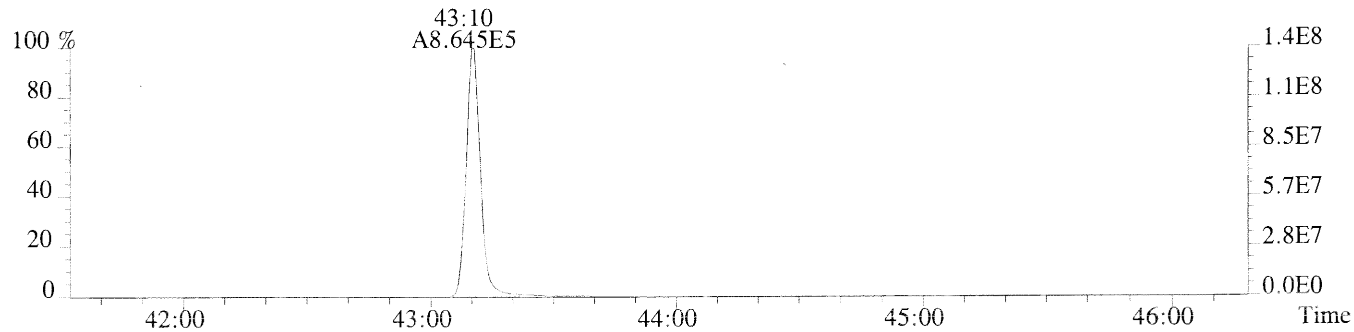




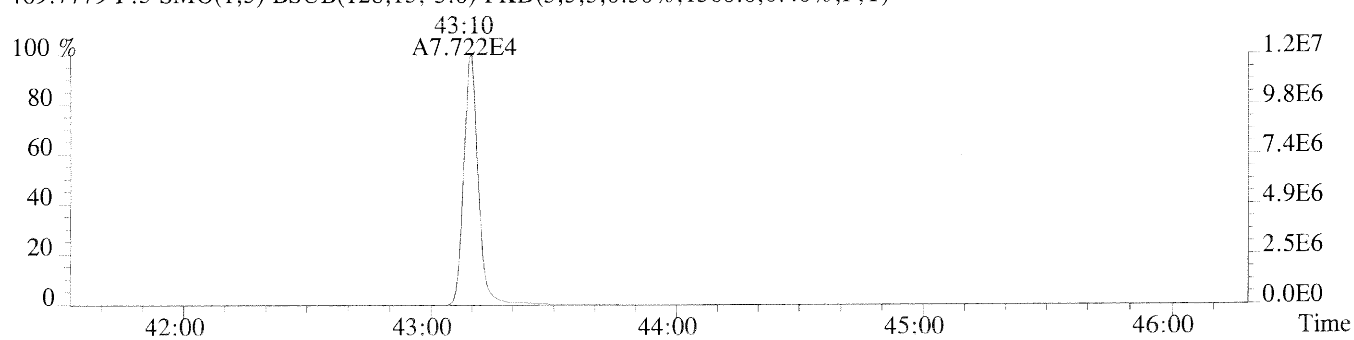
File:P169975 #1-438 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



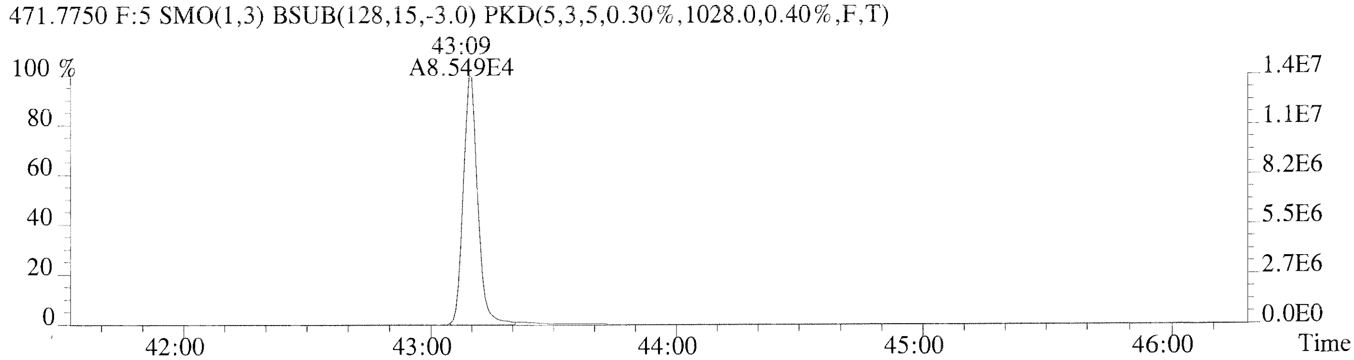
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



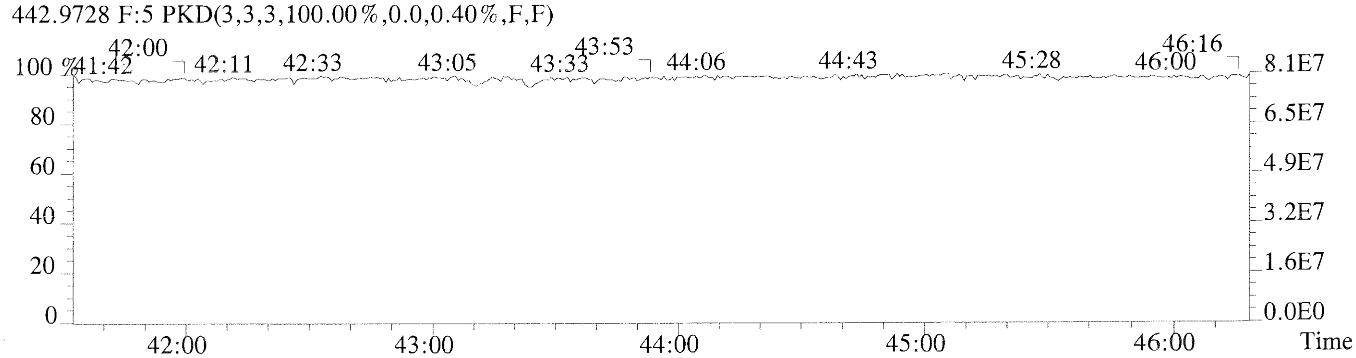
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1360.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1028.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P169976 Analysis Date: 25-MAR-14 Time: 22:10:47

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	10.1	7.8 - 12.9	0.6
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	51	39 - 65	2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	54	39 - 64	7.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	46	39 - 64	-7.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	48	41 - 61	-3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.90	0.76-1.02	93	79 - 126	-7.4
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.1	8.4 - 12.0	1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	48	41 - 60	-4.2
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	53	41 - 61	6.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	45 - 56	-3.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	-0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	44 - 57	-1.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	-0.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	53	43 - 58	6.5
OCDF	M+2/M+4	0.90	0.76-1.02	91	63 - 159	-9.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P169976 Analysis Date: 25-MAR-14 Time: 22:10:47

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	94	82 - 121	-5.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	101	62 - 160	0.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 117	2.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	113	85 - 118	12.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	114	72 - 138	13.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	244	96 - 415	22.1
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	100	71 - 140	-0.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	106	76 - 130	6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	77 - 130	1.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	113	76 - 131	12.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	104	70 - 143	4.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	110	74 - 135	10.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	73 - 137	5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	113	78 - 129	13.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	110	77 - 129	10.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-5.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

CLIENT ID.
60287

Run #7 Filename P169976 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:10:47
Processed: 26-MAR-14 12:20:58 Sample ID: ICV 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.292e+04	1.680e+04	0.77	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	1.254e+05	8.021e+04	1.56	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	1.245e+05	7.893e+04	1.58	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:47	1.176e+05	9.354e+04	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.224e+05	9.868e+04	1.24	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.109e+05	9.037e+04	1.23	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	1.080e+05	8.761e+04	1.23	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	1.096e+05	1.051e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.714e+04	9.290e+04	1.05	yes	no	1.324
10	Unk	OCDF	43:24	1.560e+05	1.732e+05	0.90	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	9.732e+03	1.241e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	8.363e+04	5.308e+04	1.58	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	8.188e+04	6.562e+04	1.25	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	8.182e+04	6.465e+04	1.27	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	8.494e+04	6.881e+04	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	7.550e+04	7.271e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:11	1.311e+05	1.463e+05	0.90	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	1.383e+05	1.725e+05	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	2.579e+05	1.642e+05	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	2.396e+05	1.521e+05	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	1.211e+05	2.317e+05	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	1.297e+05	2.461e+05	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	1.225e+05	2.333e+05	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	1.162e+05	2.243e+05	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	9.505e+04	2.133e+05	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.242e+04	1.871e+05	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	9.381e+04	1.185e+05	0.79	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:29	1.744e+05	1.106e+05	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	1.467e+05	1.161e+05	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	1.793e+05	1.402e+05	1.28	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:16	1.515e+05	1.427e+05	1.06	yes	no	0.862
32	IS	13C-OCDD	43:10	2.622e+05	2.929e+05	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	9.586e+04	1.188e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	1.676e+05	1.324e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	2.289e+04				no	1.125

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
60287

Run #13 Filename P169976 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:10:47
Processed: 26-MAR-14 09:09:411 LAB. ID: ICV 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.93e+06	1.12e+03	2.6e+03	3.78e+06	3.11e+03	1.2e+03
2	1,2,3,7,8-PeCDF	2.49e+07	1.00e+03	2.5e+04	1.57e+07	1.90e+03	8.3e+03
3	2,3,4,7,8-PeCDF	2.56e+07	1.00e+03	2.5e+04	1.62e+07	1.90e+03	8.5e+03
4	1,2,3,4,7,8-HxCDF	2.58e+07	2.42e+03	1.1e+04	2.03e+07	2.06e+03	9.9e+03
5	1,2,3,6,7,8-HxCDF	2.58e+07	2.42e+03	1.1e+04	2.11e+07	2.06e+03	1.0e+04
6	2,3,4,6,7,8-HxCDF	2.44e+07	2.42e+03	1.0e+04	2.01e+07	2.06e+03	9.8e+03
7	1,2,3,7,8,9-HxCDF	2.28e+07	2.42e+03	9.4e+03	1.86e+07	2.06e+03	9.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.27e+07	3.71e+03	6.1e+03	2.19e+07	5.87e+03	3.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.85e+07	3.71e+03	5.0e+03	1.78e+07	5.87e+03	3.0e+03
10	OCDF	2.51e+07	1.56e+03	1.6e+04	2.78e+07	2.25e+03	1.2e+04
11	2,3,7,8-TCDD	2.26e+06	1.25e+03	1.8e+03	2.89e+06	1.17e+03	2.5e+03
12	1,2,3,7,8-PeCDD	1.74e+07	1.83e+03	9.5e+03	1.10e+07	6.48e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	1.83e+07	1.36e+03	1.3e+04	1.46e+07	1.78e+03	8.2e+03
14	1,2,3,6,7,8-HxCDD	1.73e+07	1.36e+03	1.3e+04	1.38e+07	1.78e+03	7.7e+03
15	1,2,3,7,8,9-HxCDD	1.86e+07	1.36e+03	1.4e+04	1.49e+07	1.78e+03	8.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.52e+07	1.32e+03	1.2e+04	1.46e+07	1.93e+03	7.6e+03
17	OCDD	2.19e+07	1.28e+03	1.7e+04	2.45e+07	1.60e+03	1.5e+04
18	13C-2,3,7,8-TCDF	3.06e+07	2.20e+03	1.4e+04	3.82e+07	1.92e+03	2.0e+04
19	13C-1,2,3,7,8-PeCDF	5.04e+07	8.96e+02	5.6e+04	3.21e+07	8.20e+02	3.9e+04
20	13C-2,3,4,7,8-PeCDF	4.82e+07	8.96e+02	5.4e+04	3.03e+07	8.20e+02	3.7e+04
21	13C-1,2,3,4,7,8-HxCDF	2.63e+07	1.22e+03	2.2e+04	5.01e+07	2.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	2.74e+07	1.22e+03	2.3e+04	5.21e+07	2.64e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.67e+07	1.22e+03	2.2e+04	5.11e+07	2.64e+03	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	2.43e+07	1.22e+03	2.0e+04	4.71e+07	2.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.94e+07	7.31e+03	2.7e+03	4.35e+07	1.16e+04	3.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.57e+07	7.31e+03	2.1e+03	3.58e+07	1.16e+04	3.1e+03
27	13C-2,3,7,8-TCDD	2.13e+07	4.16e+03	5.1e+03	2.70e+07	2.20e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	3.55e+07	1.31e+03	2.7e+04	2.25e+07	8.64e+02	2.6e+04
29	13C-1,2,3,4,7,8-HxCDD	3.27e+07	1.46e+03	2.2e+04	2.56e+07	1.57e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	3.82e+07	1.46e+03	2.6e+04	3.01e+07	1.57e+03	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.01e+07	1.44e+03	2.1e+04	2.82e+07	1.33e+03	2.1e+04
32	13C-OCDD	4.32e+07	7.24e+02	6.0e+04	4.82e+07	1.14e+03	4.2e+04
33	13C-1,2,3,4-TCDD	2.10e+07	4.16e+03	5.0e+03	2.63e+07	2.20e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	3.60e+07	1.46e+03	2.5e+04	2.86e+07	1.57e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	5.28e+06	1.78e+03	3.0e+03			

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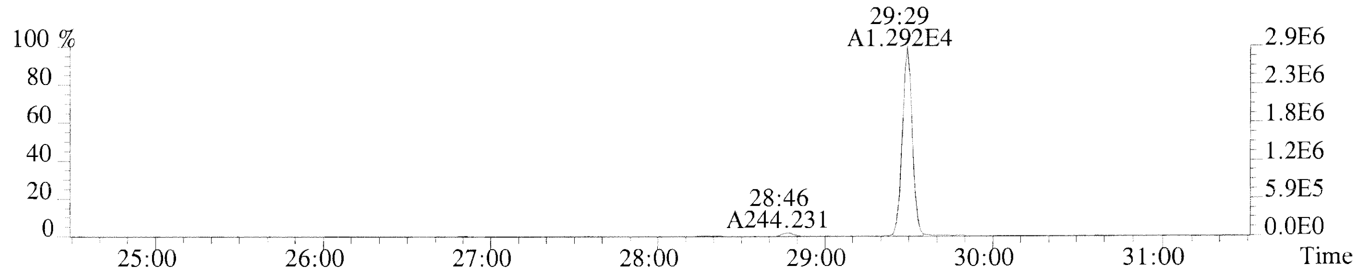
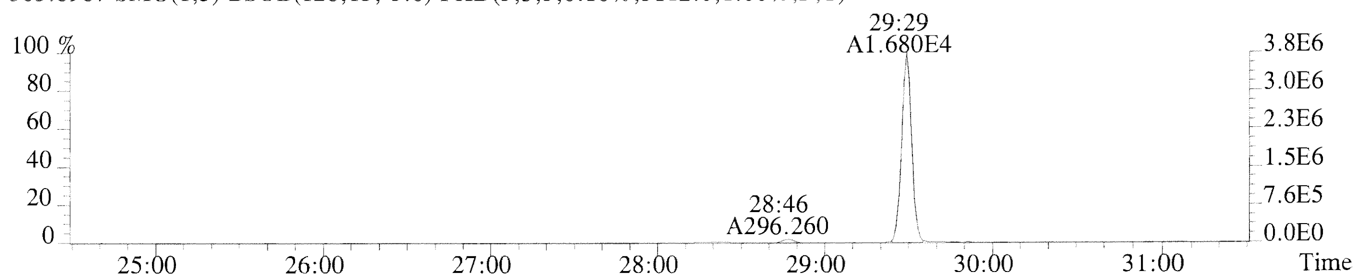
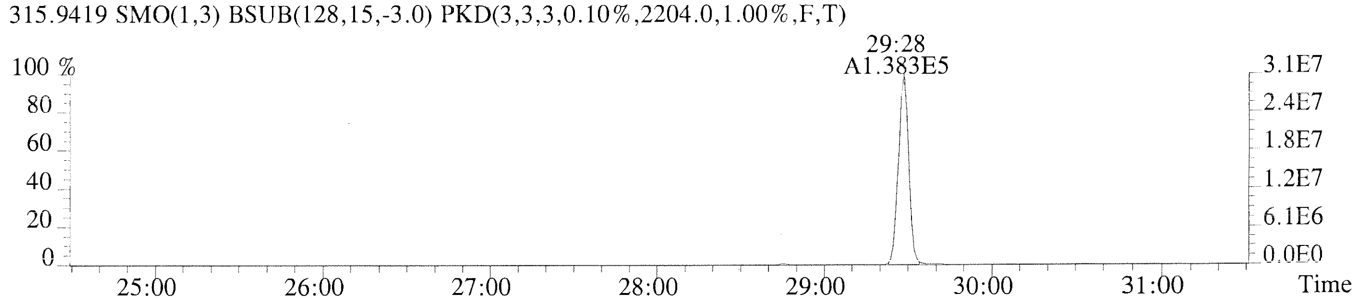
File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



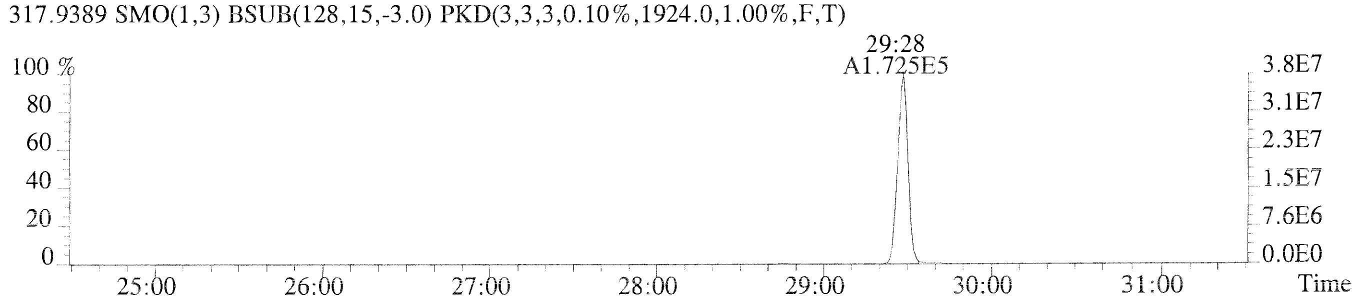
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3112.0,1.00%,F,T)



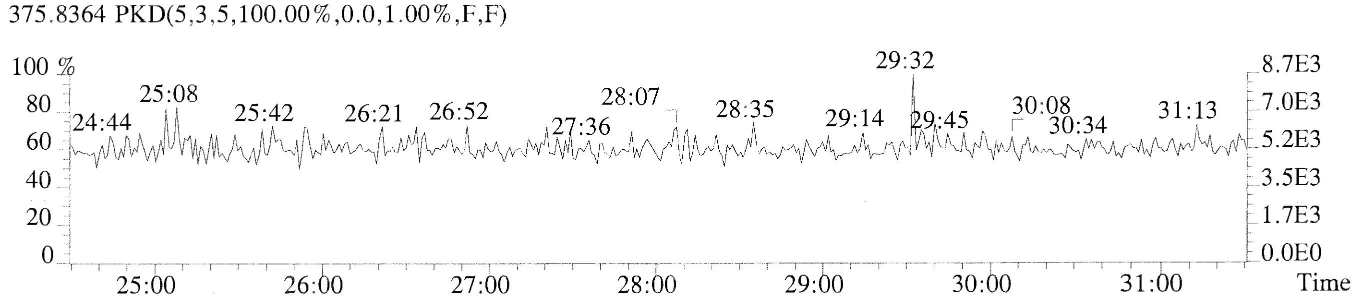
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



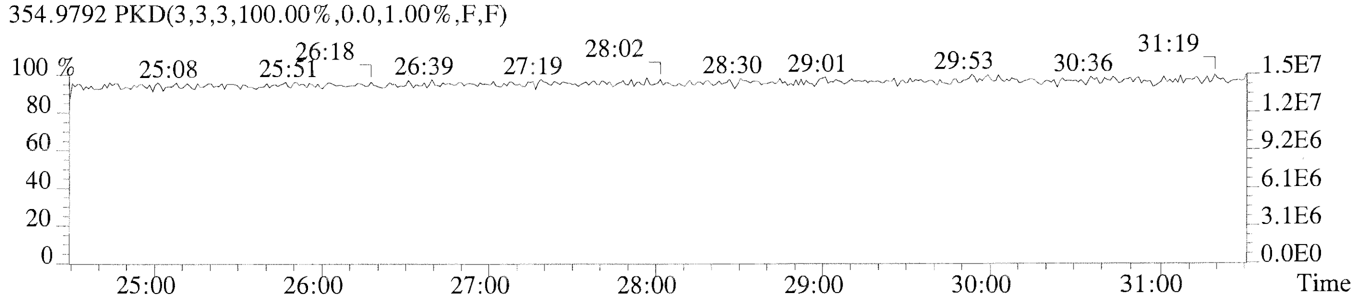
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



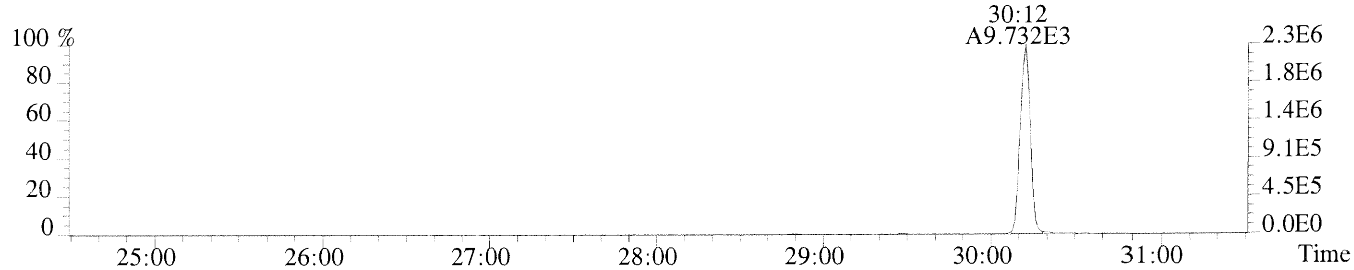
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



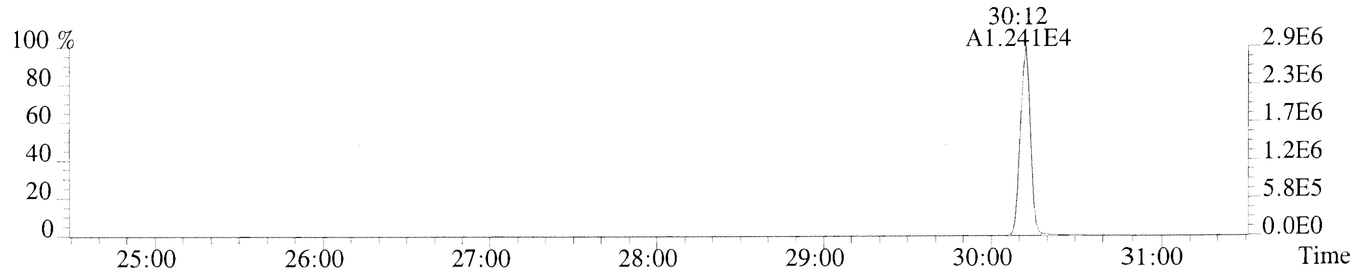
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



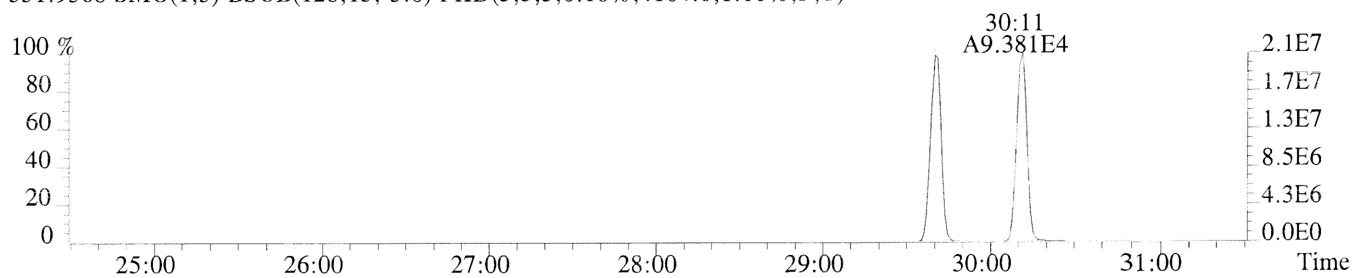
File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



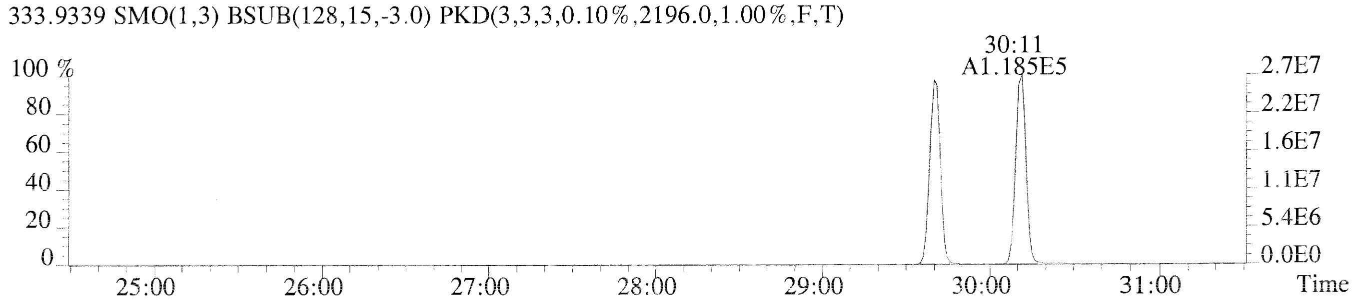
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



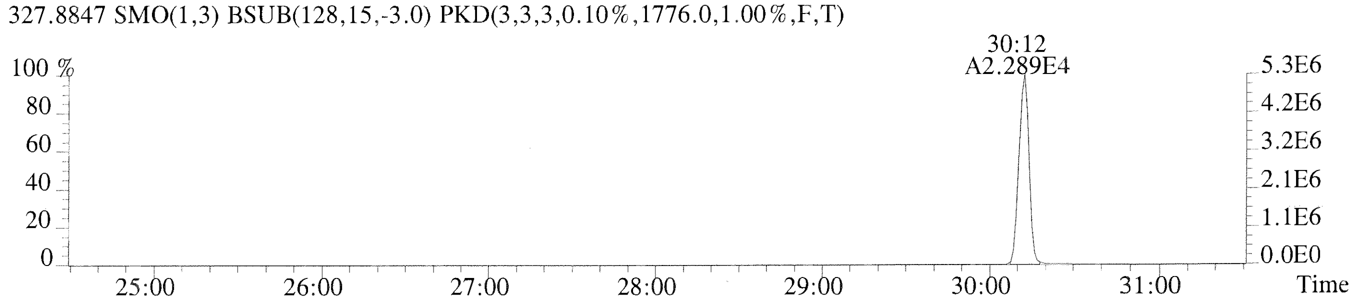
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



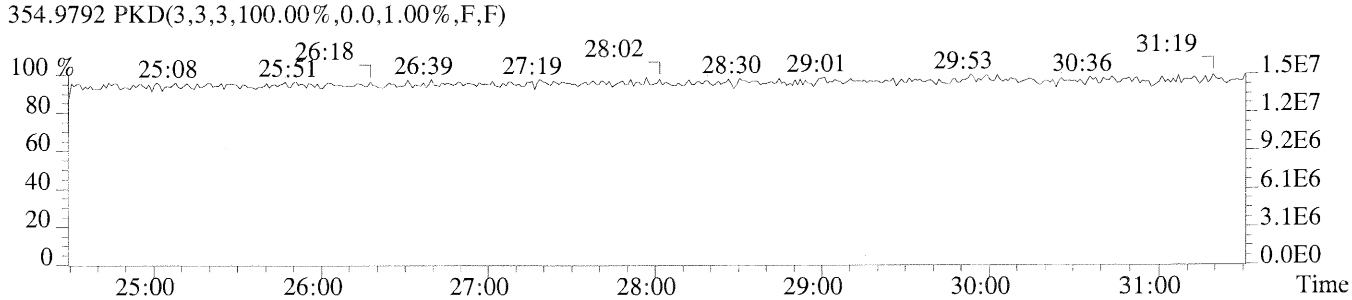
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)

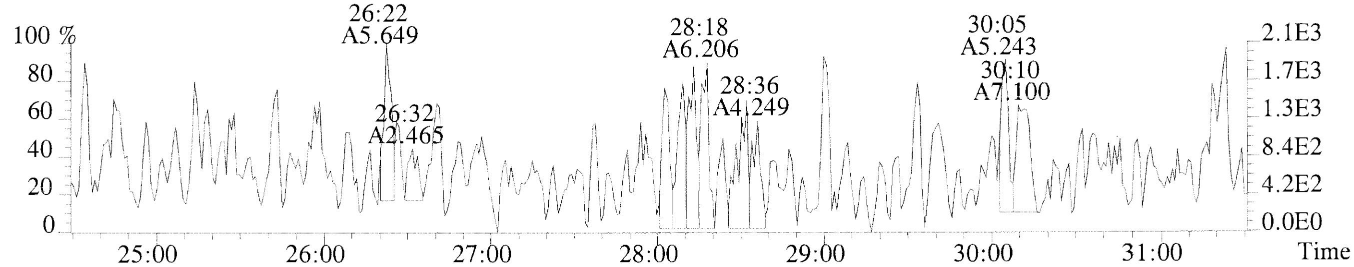


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

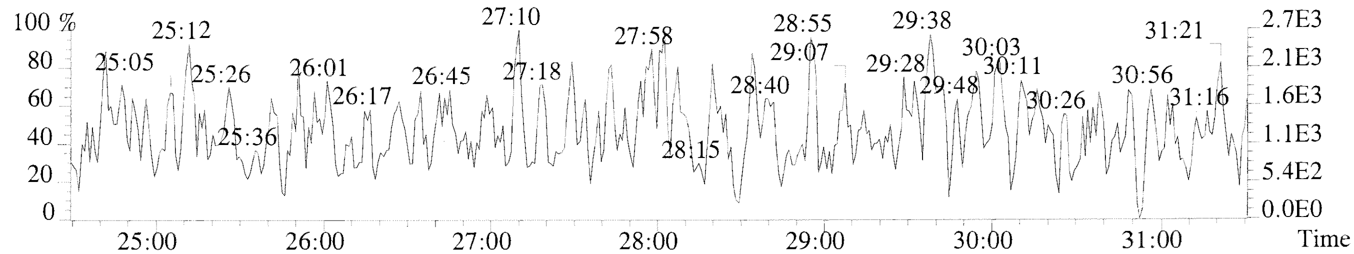


File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

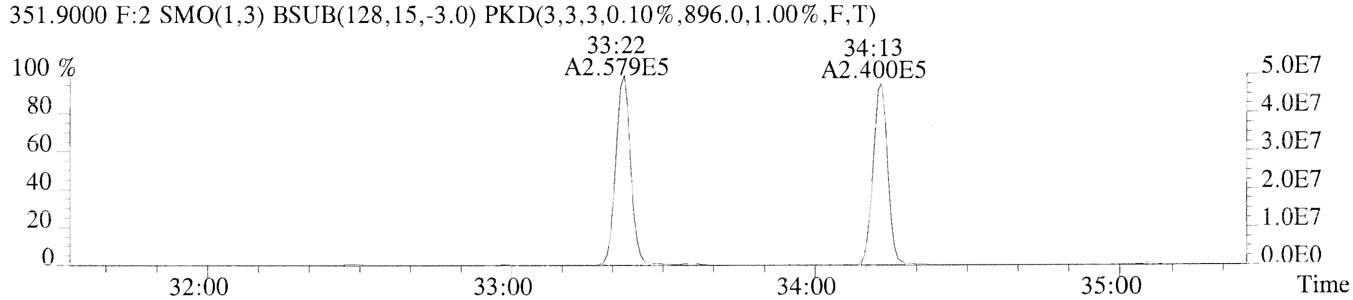
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



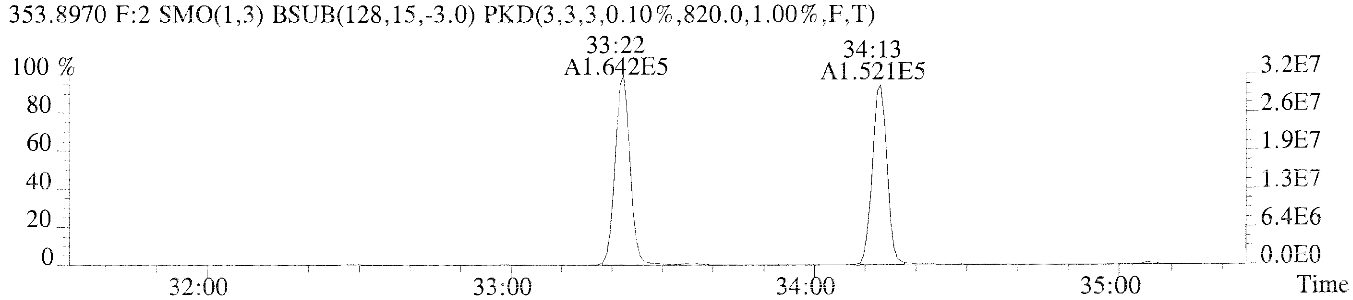
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



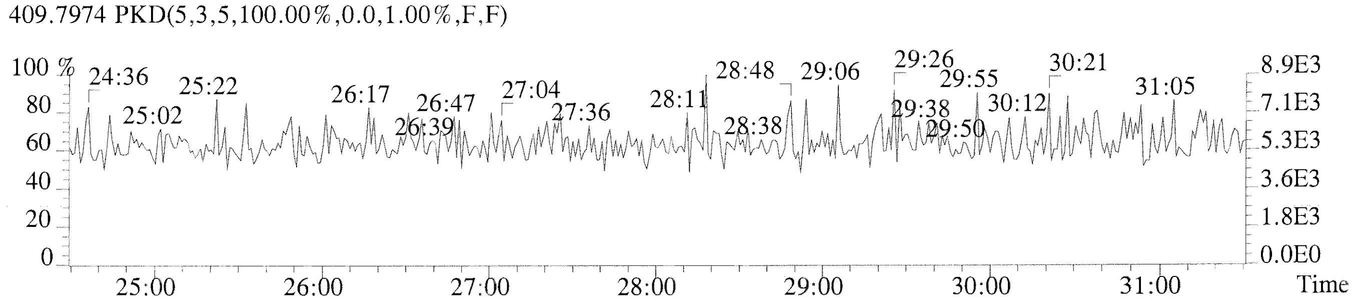
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



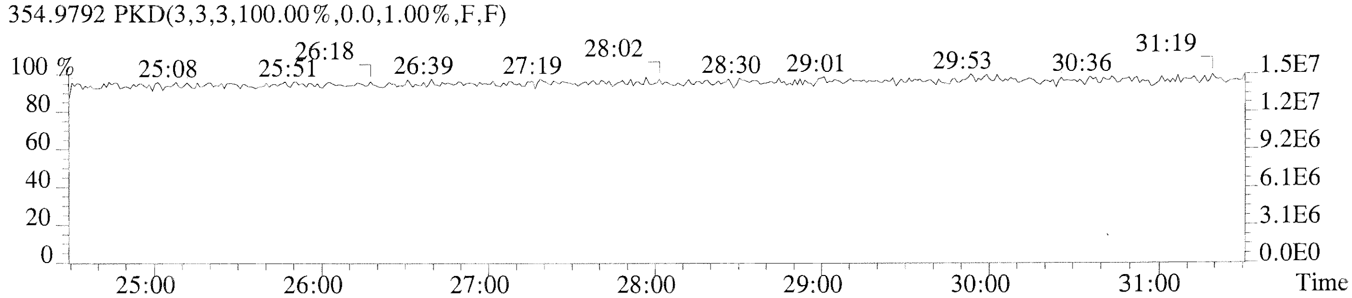
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

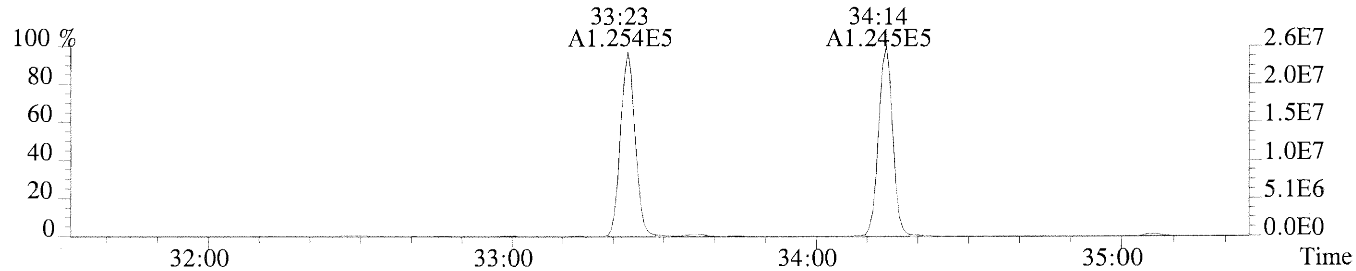


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

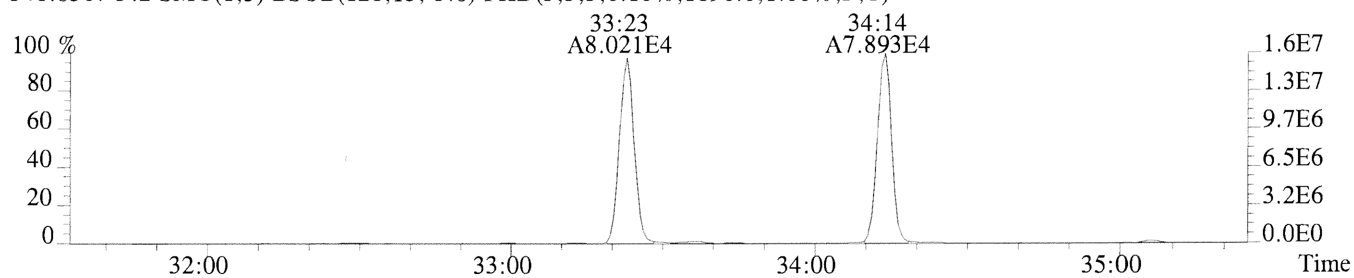


File:P169976 #1-351 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

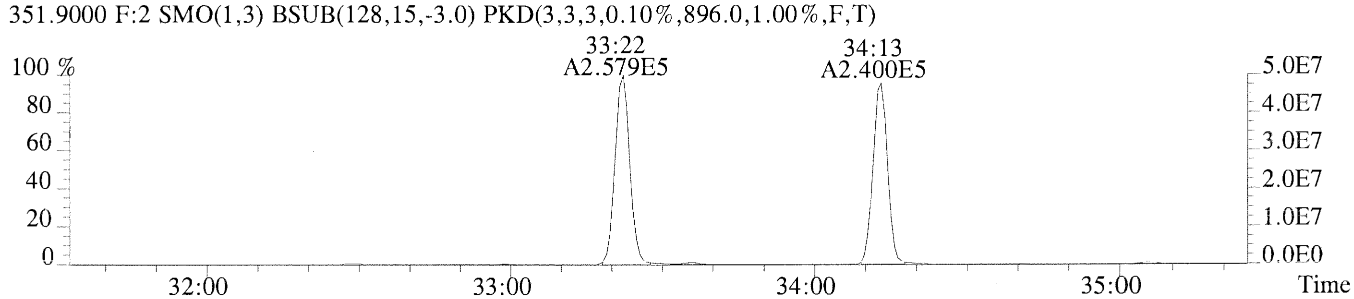
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



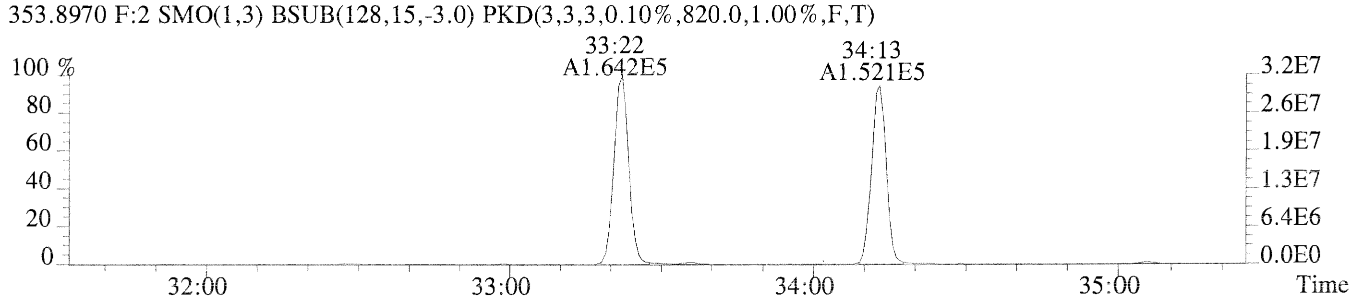
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



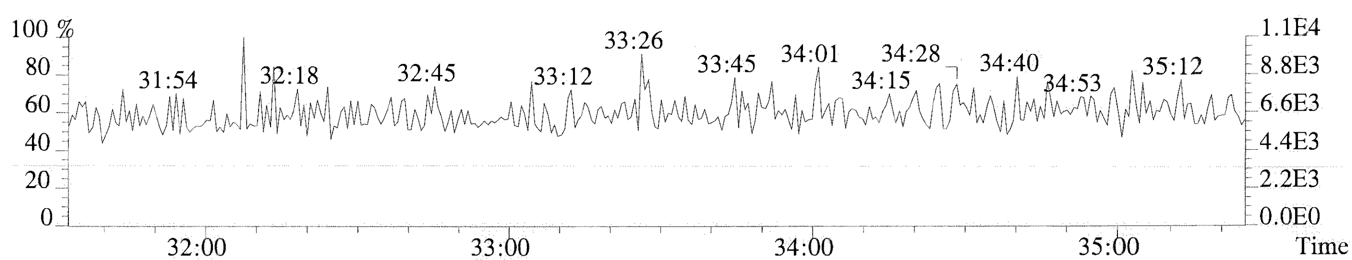
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



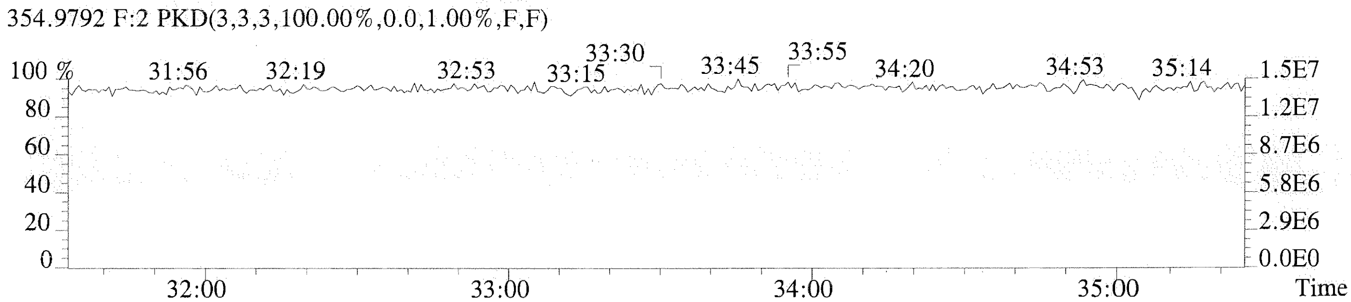
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



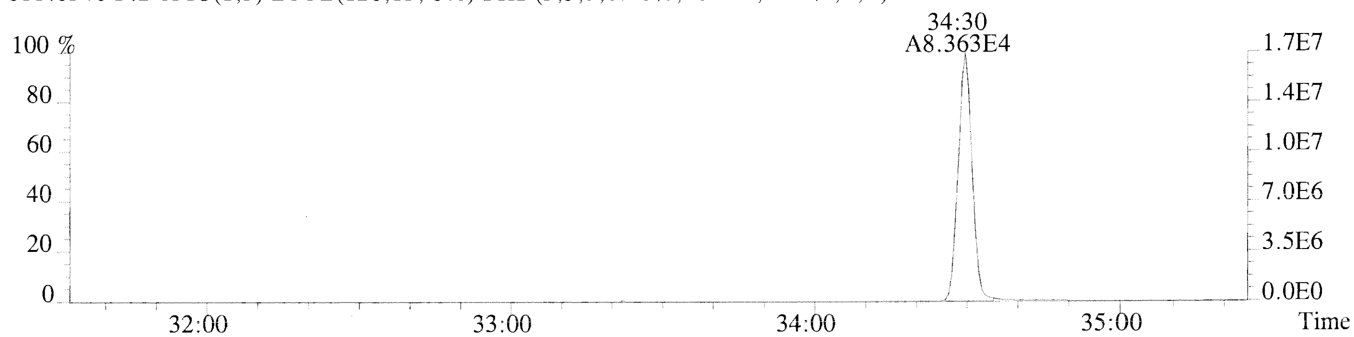
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



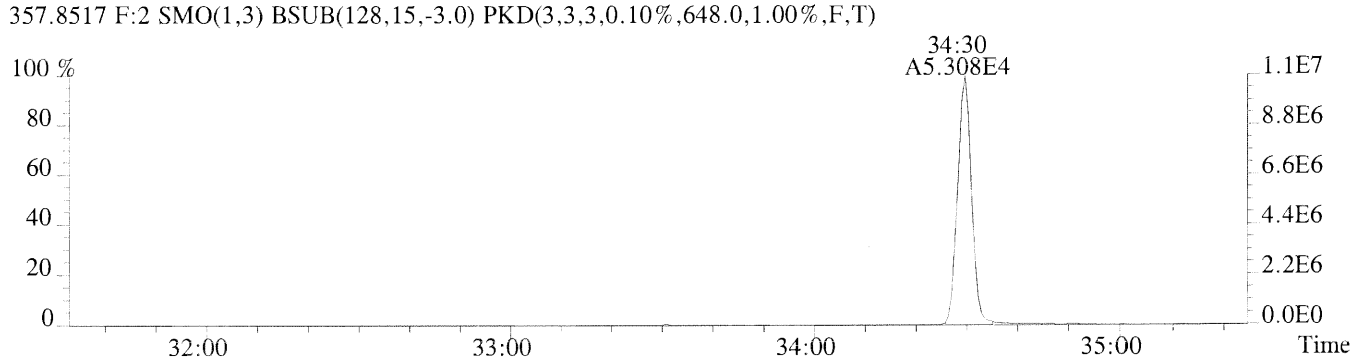
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



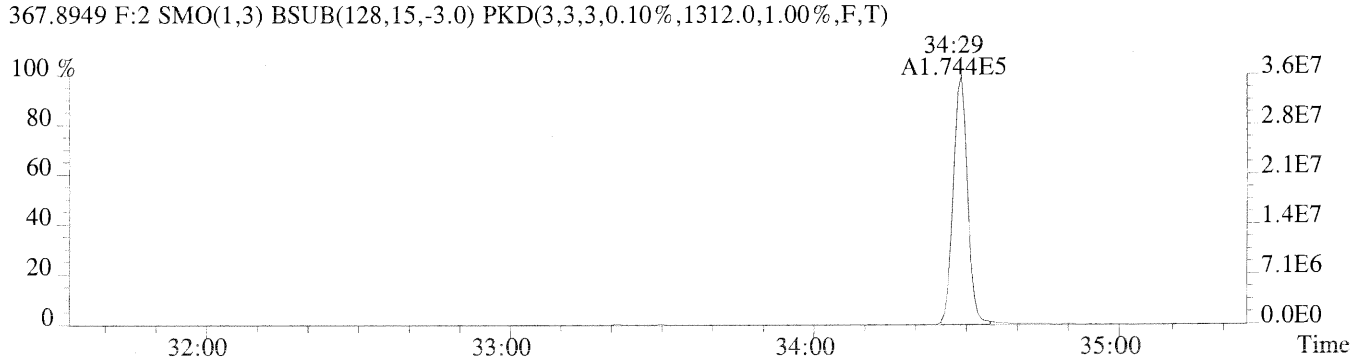
File:P169976 #1-351 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



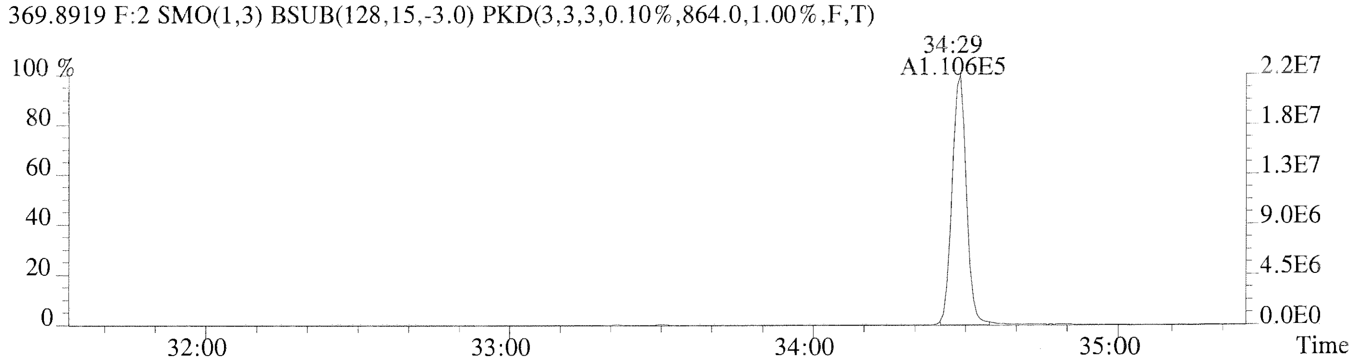
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



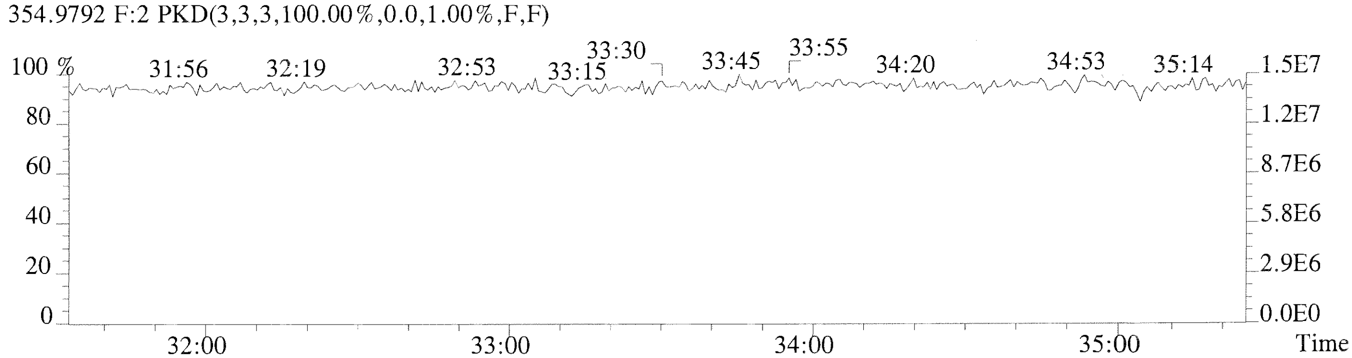
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)

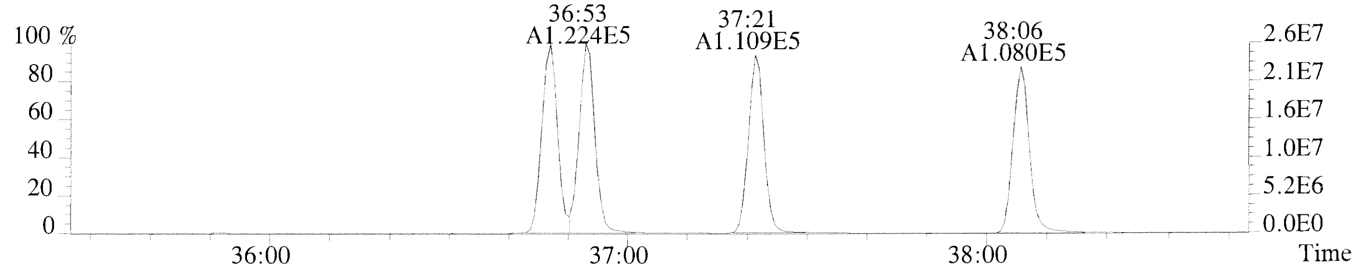


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

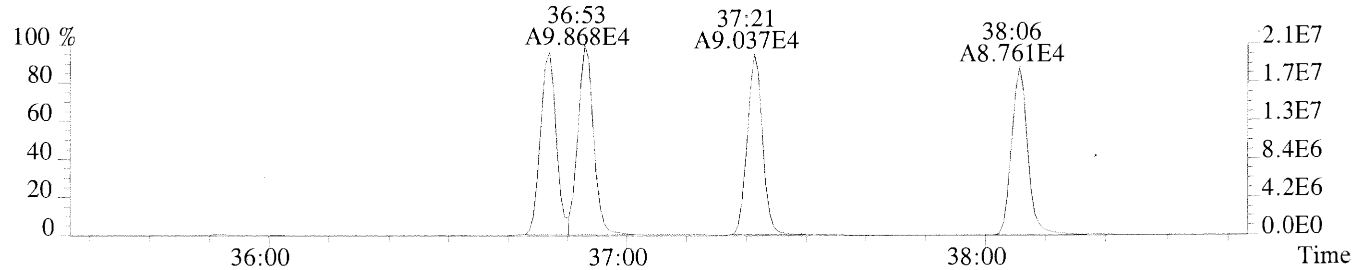


File:P169976 #1-298 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

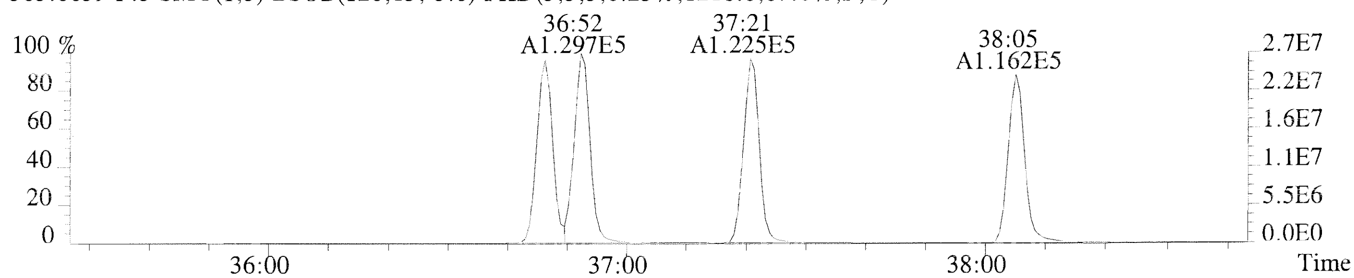
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.40%,F,T)



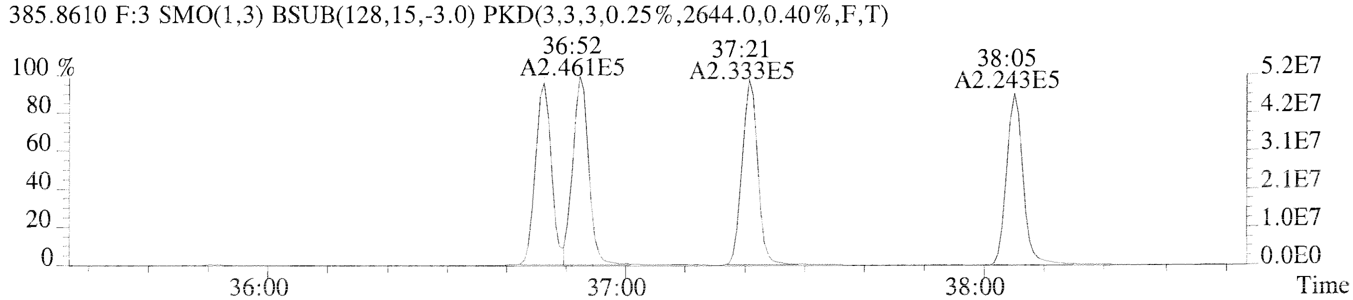
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



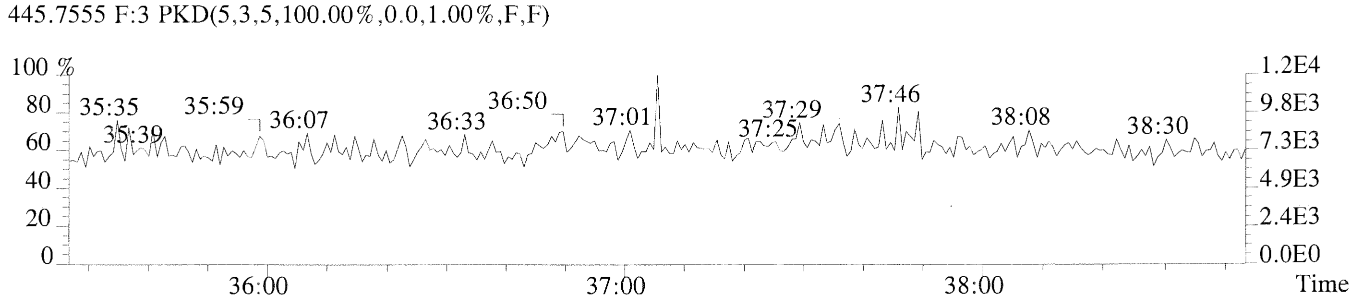
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



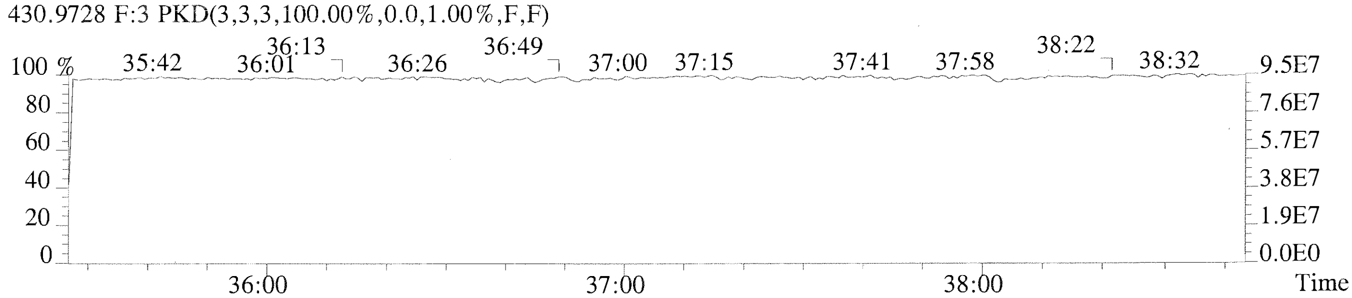
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2644.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

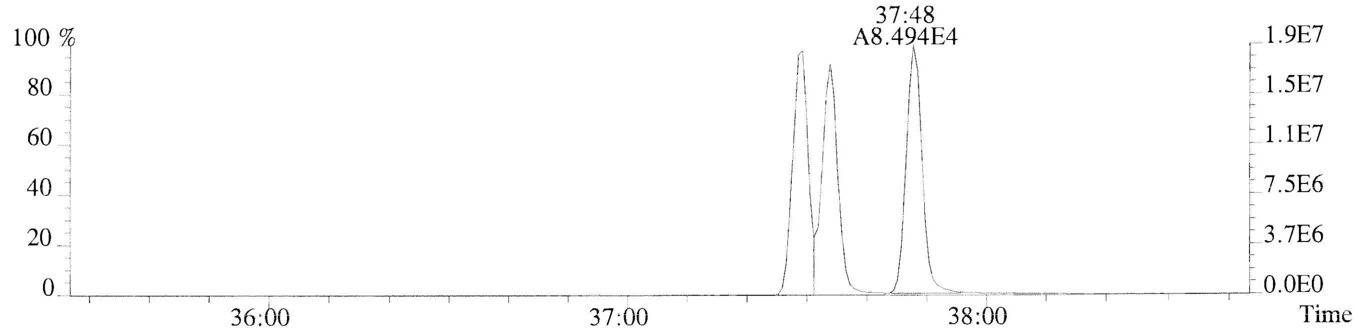


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

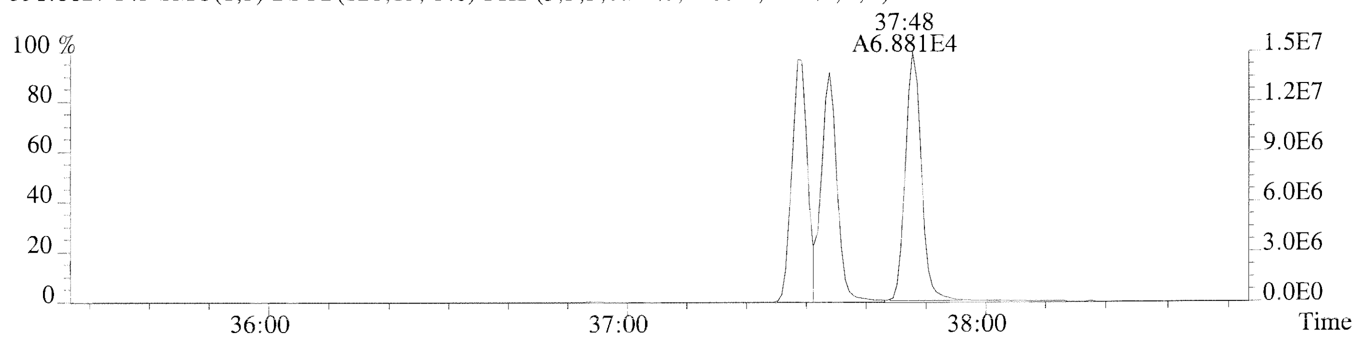


File:P169976 #1-298 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

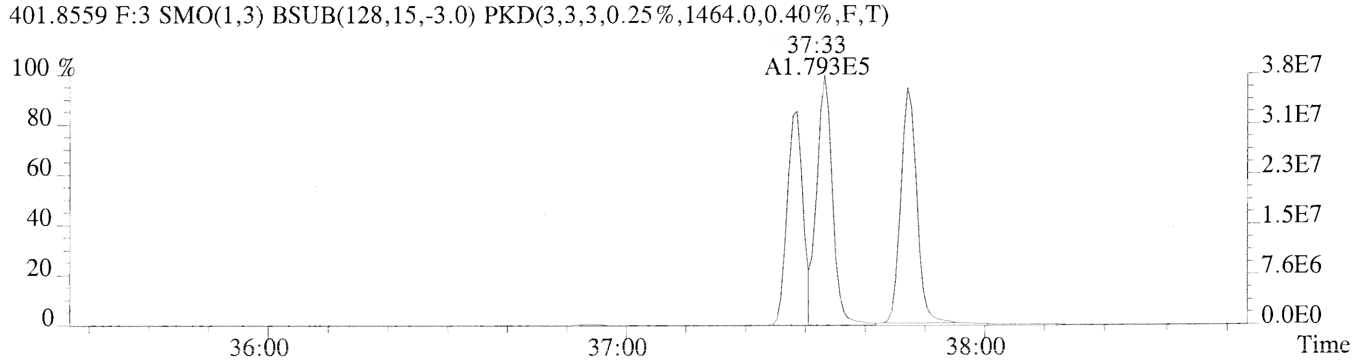
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



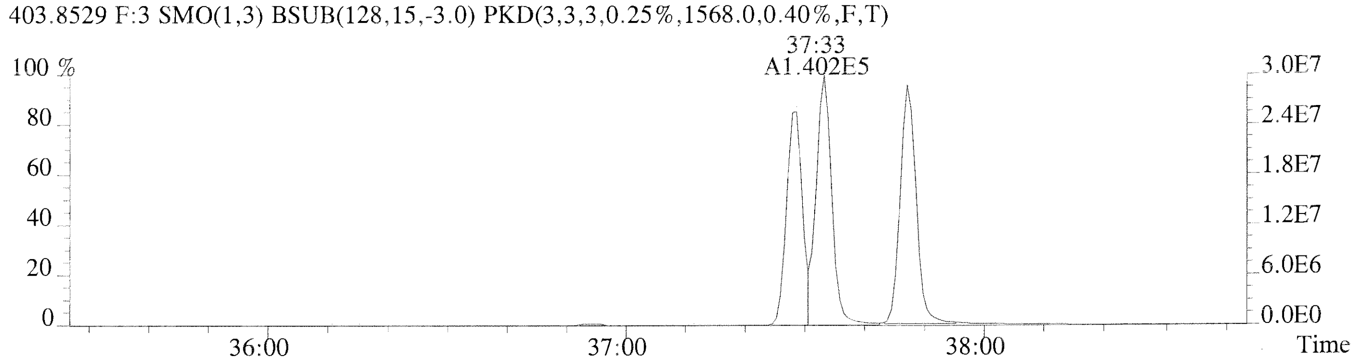
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.40%,F,T)



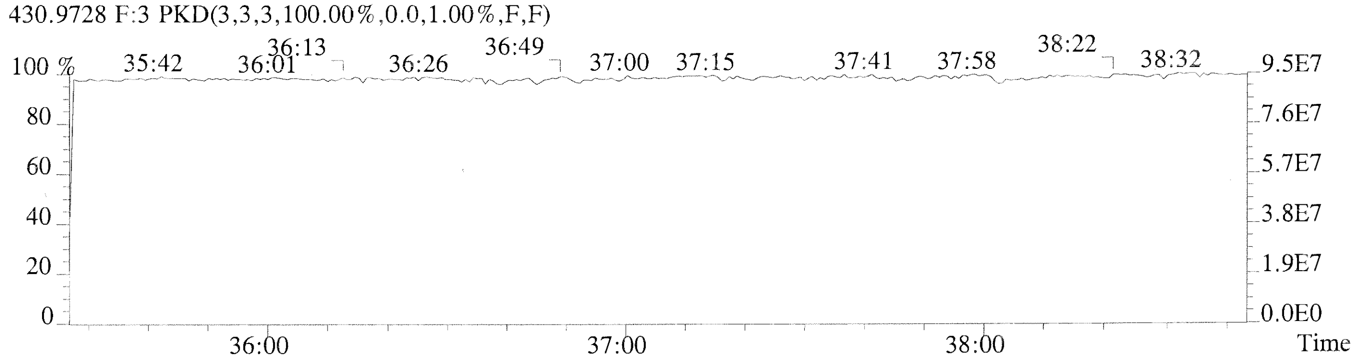
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



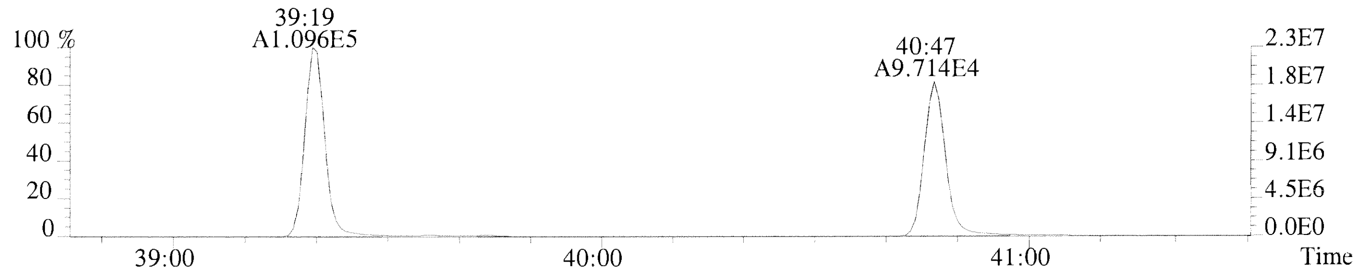
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



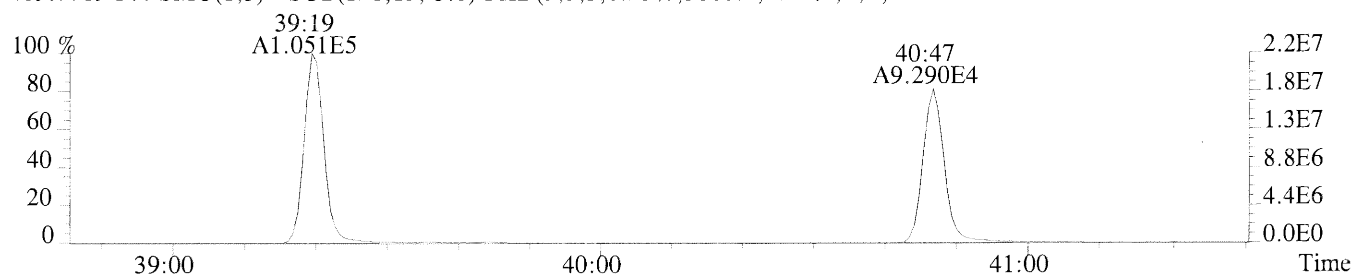
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



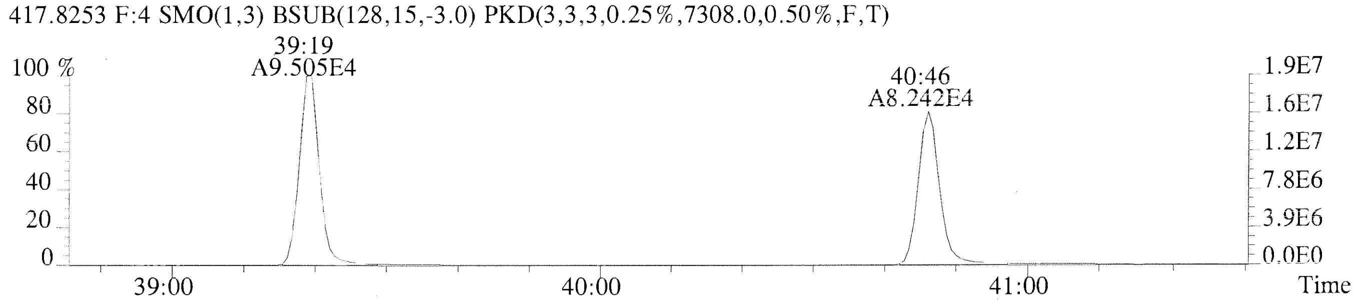
File:P169976 #1-250 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3708.0,0.50%,F,T)



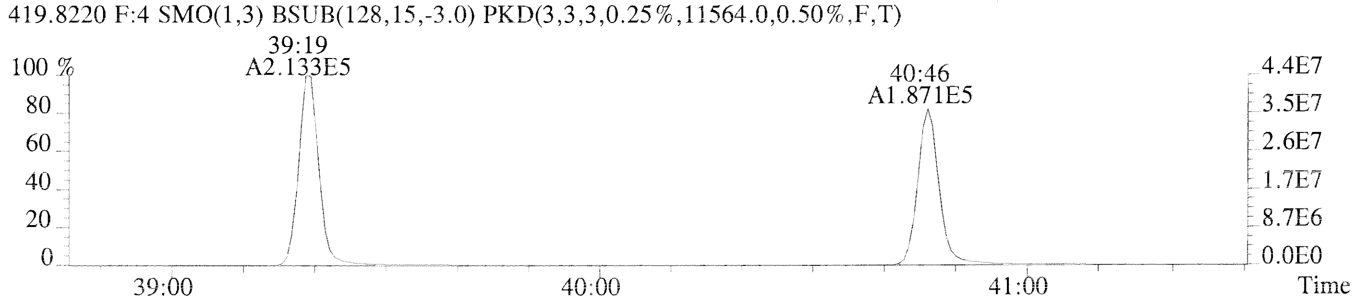
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5868.0,0.50%,F,T)



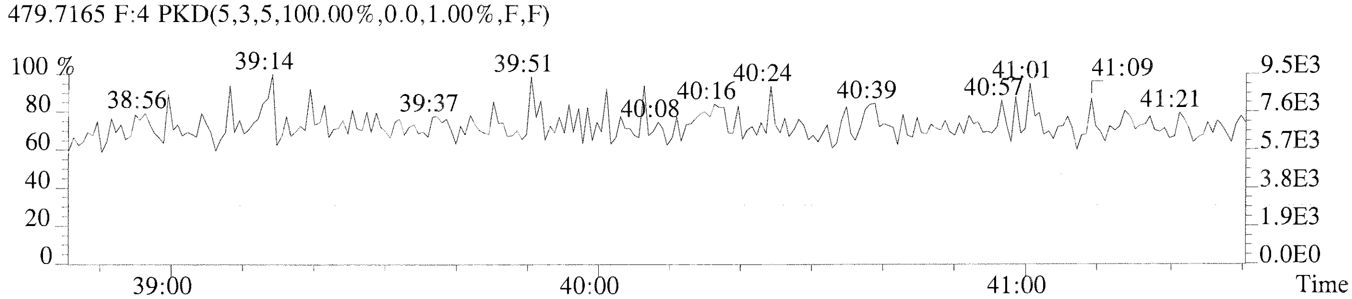
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7308.0,0.50%,F,T)



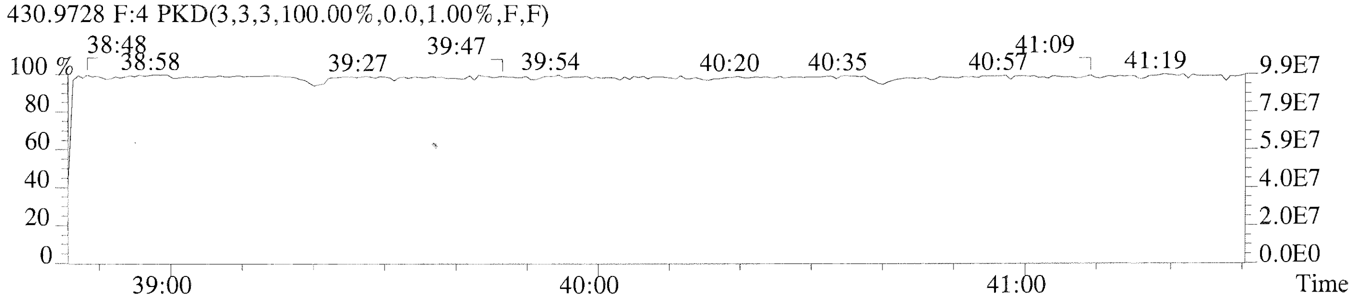
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11564.0,0.50%,F,T)



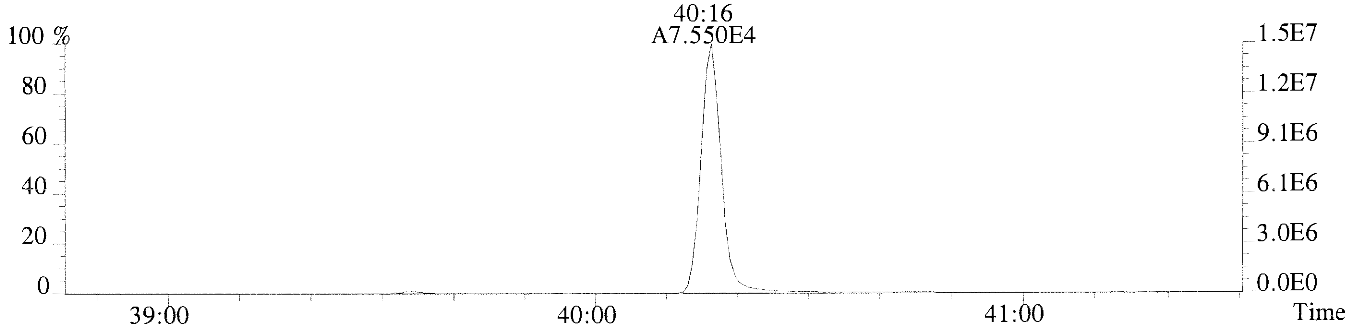
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



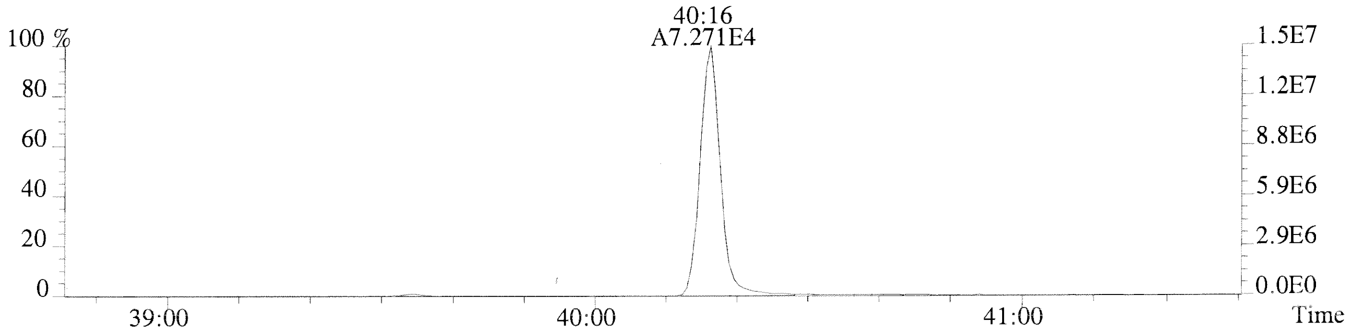
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



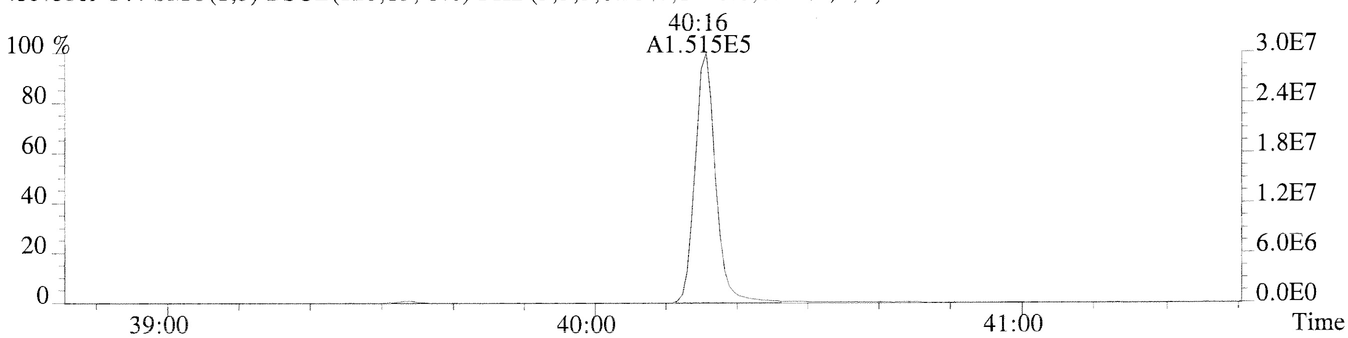
File:P169976 #1-250 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



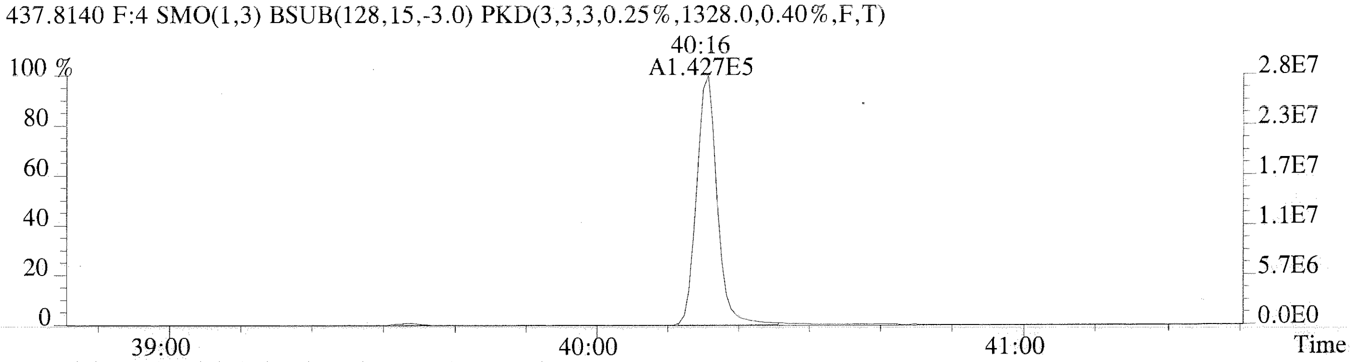
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



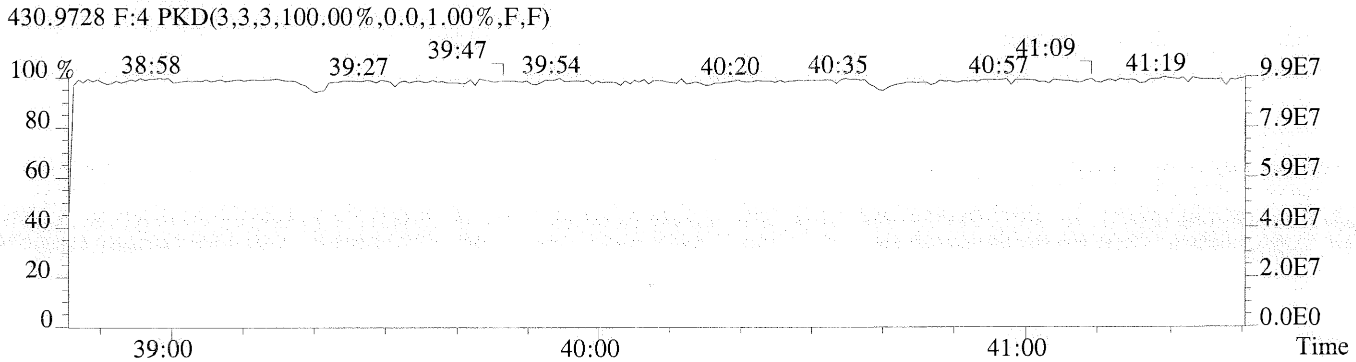
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)

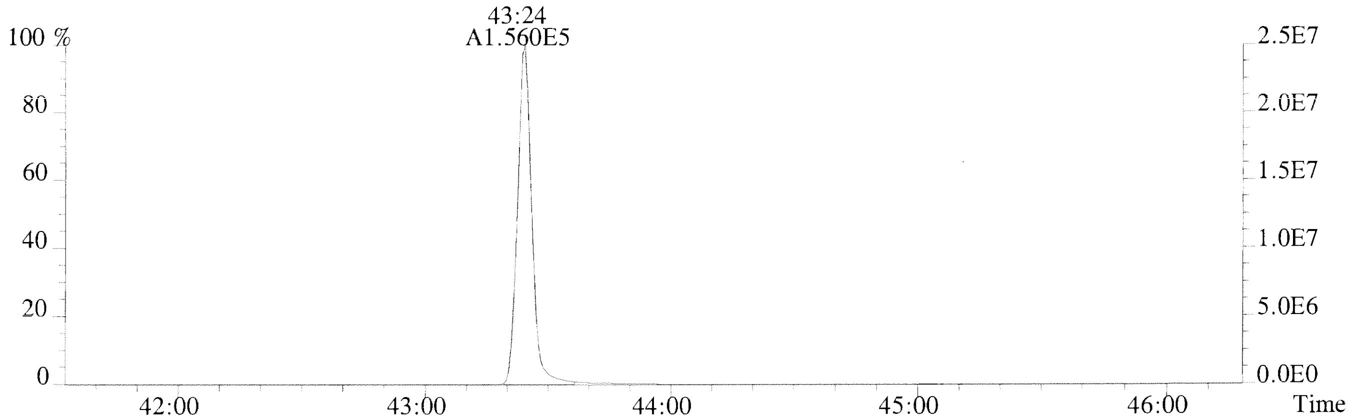


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

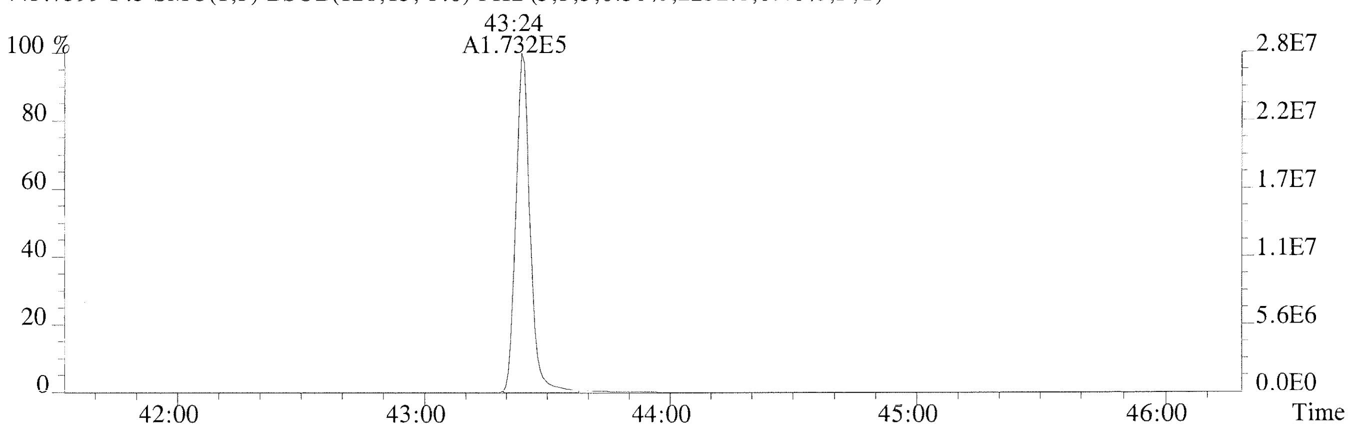


File:P169976 #1-438 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

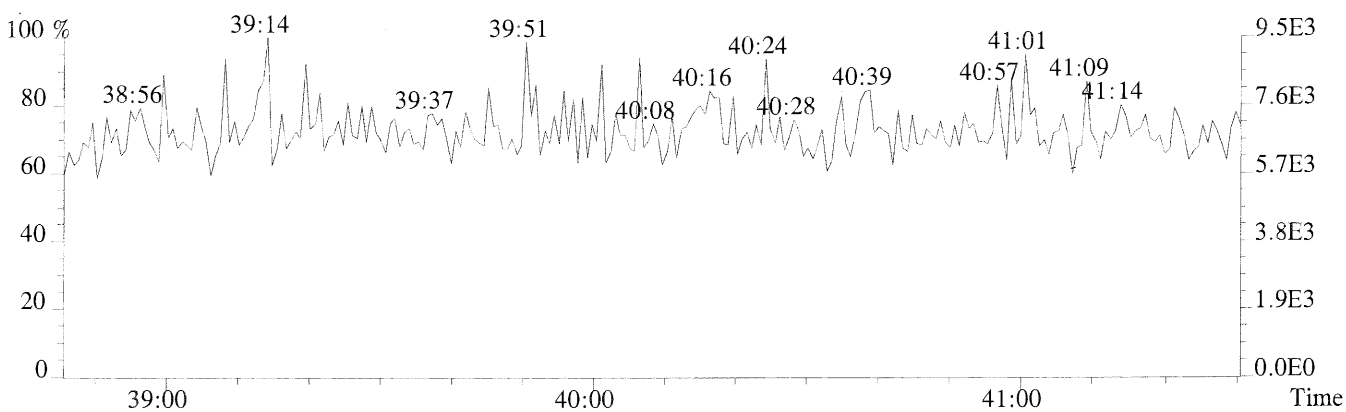
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,F,T)



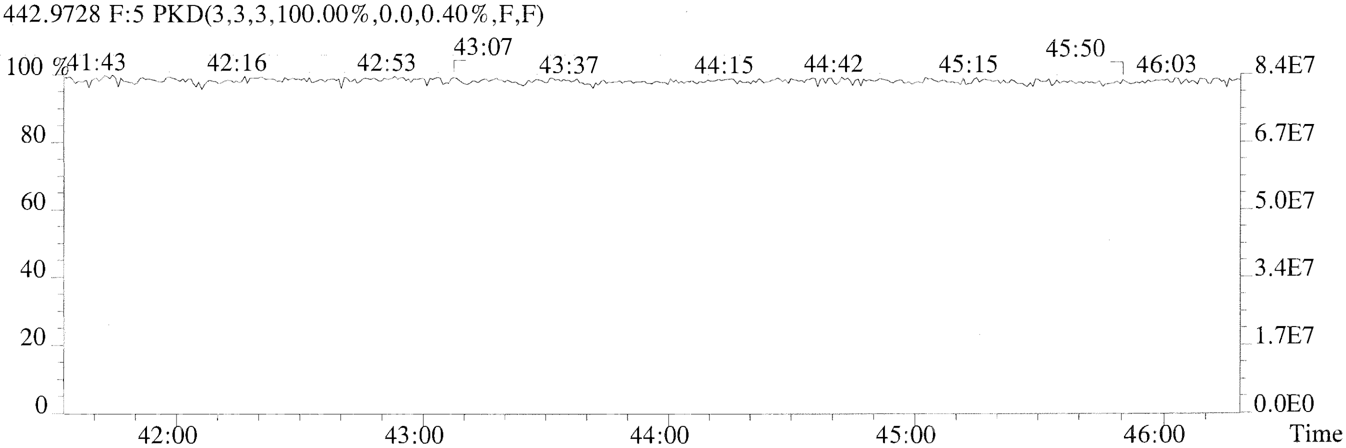
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2252.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

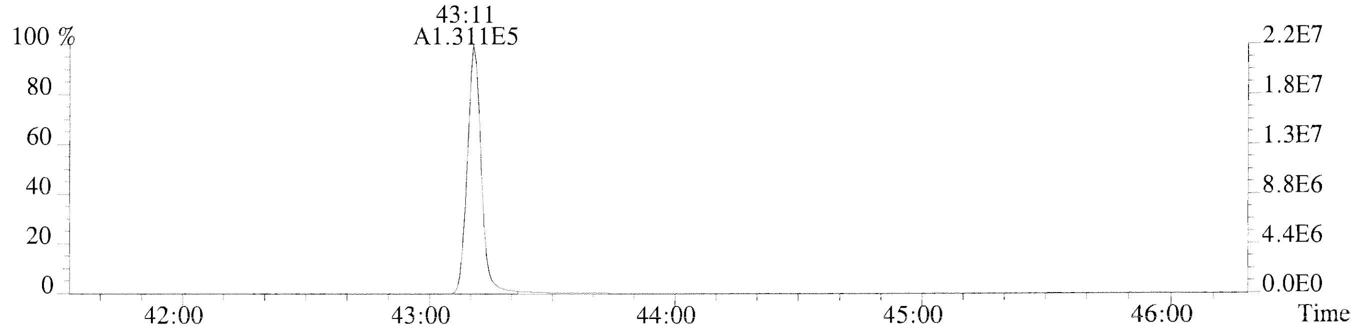


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

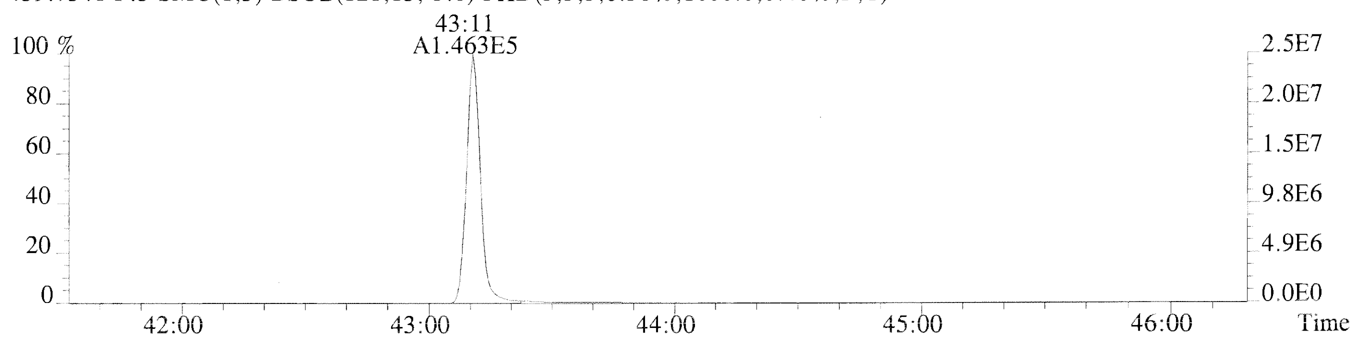


File:P169976 #1-438 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

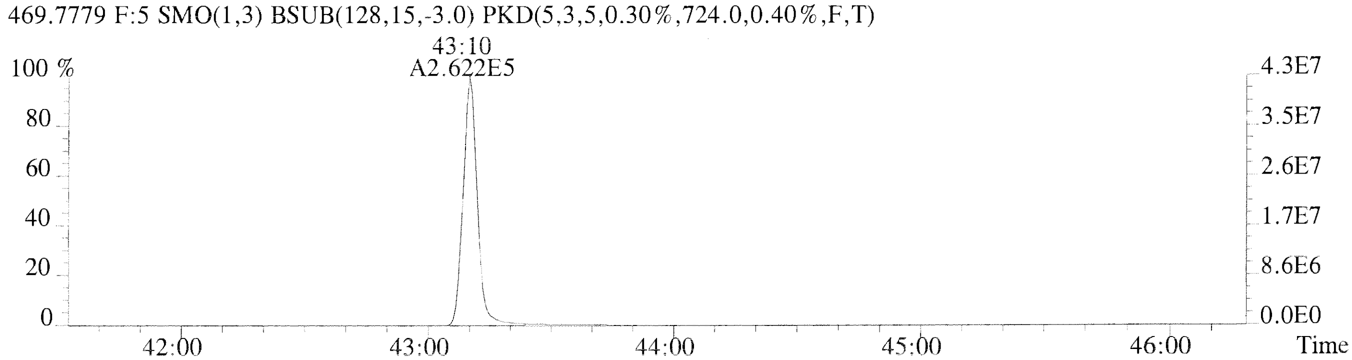
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



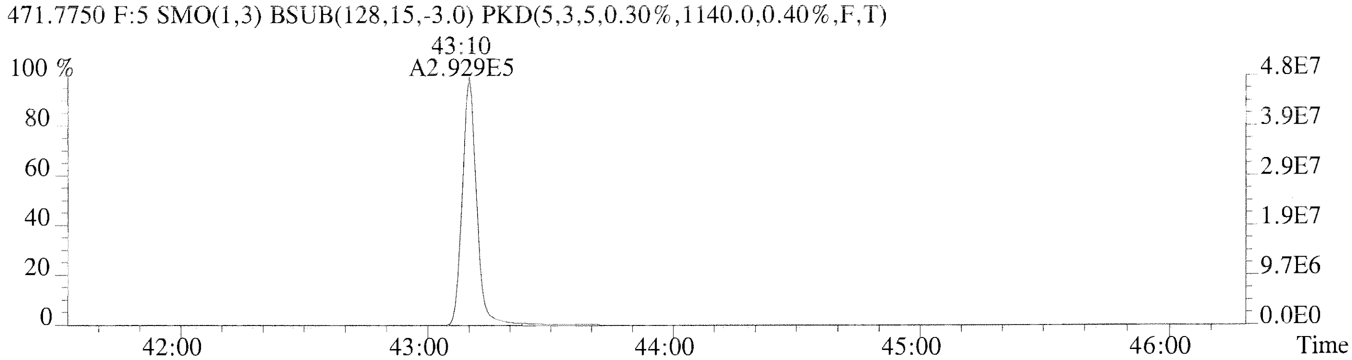
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1600.0,0.40%,F,T)



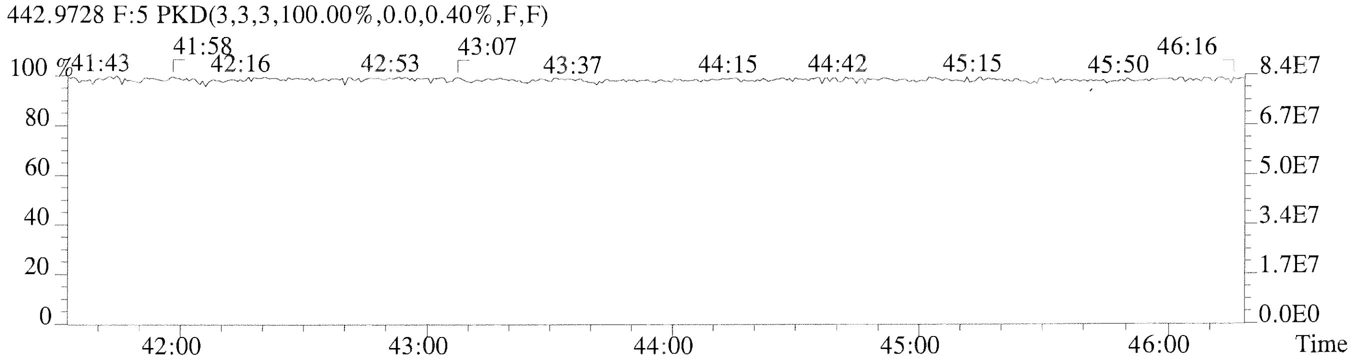
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03   GC Column ID: DB-5MSUI

VER Data Filename: P169977   Analysis Date: 25-MAR-14 Time: 22:58:54

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	10.4	7.8 - 12.9	3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	55	39 - 65	9.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	48	39 - 64	-4.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	48	39 - 64	-3.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	45	41 - 61	-9.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.7
OCDD	M+2/M+4	0.91	0.76-1.02	95	79 - 126	-5.2
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.6	8.4 - 12.0	-3.9
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	47	41 - 60	-6.2
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	51	41 - 61	3.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.30	1.05-1.43	47	44 - 57	-5.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	46	45 - 56	-8.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	49	44 - 57	-1.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	49	45 - 55	-2.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	52	43 - 58	3.5
OCDF	M+2/M+4	0.91	0.76-1.02	97	63 - 159	-3.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P169977 | Analysis Date: 25-MAR-14 Time: 22:58:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	91	82 - 121	-8.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	98	62 - 160	-2.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	109	85 - 117	9.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	106	85 - 118	6.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	102	72 - 138	2.0
13C-OCDD	M+2/M+4	0.89	0.76-1.02	218	96 - 415	9.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	114	71 - 140	14.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	114	76 - 130	14.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	115	77 - 130	14.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	110	76 - 131	10.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	70 - 143	6.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	113	74 - 135	12.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	110	73 - 137	10.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	114	78 - 129	14.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	107	77 - 129	6.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-4.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-5-1B

Run #8 Filename P169977 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:58:54
Processed: 26-MAR-14 12:21:08 Sample ID: STD

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	2.486e+03	3.274e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	2.372e+04	1.480e+04	1.60	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	2.424e+04	1.543e+04	1.57	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	2.173e+04	1.742e+04	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	2.365e+04	1.826e+04	1.30	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	2.283e+04	1.848e+04	1.24	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.992e+04	1.588e+04	1.25	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	2.136e+04	2.036e+04	1.05	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.795e+04	1.714e+04	1.05	yes	no	1.324
10	Unk	OCDF	43:23	2.928e+04	3.222e+04	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	1.748e+03	2.191e+03	0.80	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:28	1.557e+04	9.818e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:28	1.549e+04	1.206e+04	1.28	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	1.576e+04	1.264e+04	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	1.580e+04	1.252e+04	1.26	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.363e+04	1.312e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:10	2.366e+04	2.610e+04	0.91	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	2.789e+04	3.550e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:21	4.915e+04	3.157e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	4.813e+04	3.076e+04	1.56	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:45	2.293e+04	4.480e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.579e+04	4.914e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.460e+04	4.815e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.346e+04	4.459e+04	0.53	yes	yes	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:18	1.842e+04	4.255e+04	0.43	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.538e+04	3.585e+04	0.43	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	1.597e+04	2.060e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	3.020e+04	1.913e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:27	3.055e+04	2.469e+04	1.24	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:32	3.293e+04	2.634e+04	1.25	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.674e+04	2.501e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:09	4.571e+04	5.158e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:39	1.684e+04	2.135e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.283e+04	2.600e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	4.103e+03				no	1.125

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
D12-5-1B

Run #14 Filename P169977 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:58:54
Processed: 26-MAR-14 09:09:511 LAB. ID: STD

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.49e+05	9.80e+02	5.6e+02	7.28e+05	2.03e+03	3.6e+02
2	1,2,3,7,8-PeCDF	4.48e+06	1.36e+03	3.3e+03	2.77e+06	1.61e+03	1.7e+03
3	2,3,4,7,8-PeCDF	4.93e+06	1.36e+03	3.6e+03	3.15e+06	1.61e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	4.68e+06	1.03e+03	4.5e+03	3.81e+06	1.32e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	4.88e+06	1.03e+03	4.7e+03	3.70e+06	1.32e+03	2.8e+03
6	2,3,4,6,7,8-HxCDF	4.85e+06	1.03e+03	4.7e+03	3.87e+06	1.32e+03	2.9e+03
7	1,2,3,7,8,9-HxCDF	3.98e+06	1.03e+03	3.9e+03	3.22e+06	1.32e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.33e+06	2.69e+03	1.6e+03	4.08e+06	3.18e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.26e+06	2.69e+03	1.2e+03	3.15e+06	3.18e+03	9.9e+02
10	OCDF	4.63e+06	1.52e+03	3.1e+03	5.02e+06	2.10e+03	2.4e+03
11	2,3,7,8-TCDD	4.01e+05	8.52e+02	4.7e+02	5.02e+05	1.30e+03	3.9e+02
12	1,2,3,7,8-PeCDD	3.15e+06	1.31e+03	2.4e+03	1.95e+06	7.12e+02	2.7e+03
13	1,2,3,4,7,8-HxCDD	3.47e+06	1.07e+03	3.2e+03	2.64e+06	1.20e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.28e+06	1.07e+03	3.1e+03	2.64e+06	1.20e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	3.18e+06	1.07e+03	3.0e+03	2.49e+06	1.20e+03	2.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.63e+06	1.46e+03	1.8e+03	2.52e+06	7.12e+02	3.5e+03
17	OCDD	3.83e+06	1.06e+03	3.6e+03	4.24e+06	1.95e+03	2.2e+03
18	13C-2,3,7,8-TCDF	6.18e+06	1.46e+03	4.2e+03	7.80e+06	1.76e+03	4.4e+03
19	13C-1,2,3,7,8-PeCDF	9.28e+06	8.80e+02	1.1e+04	6.09e+06	1.20e+03	5.1e+03
20	13C-2,3,4,7,8-PeCDF	9.80e+06	8.80e+02	1.1e+04	6.30e+06	1.20e+03	5.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.90e+06	1.50e+03	3.3e+03	9.64e+06	1.57e+03	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	5.20e+06	1.50e+03	3.5e+03	9.86e+06	1.57e+03	6.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.25e+06	1.50e+03	3.5e+03	1.02e+07	1.57e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	4.64e+06	1.50e+03	3.1e+03	8.80e+06	1.57e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.78e+06	3.35e+03	1.1e+03	8.63e+06	3.47e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.88e+06	3.35e+03	8.6e+02	6.68e+06	3.47e+03	1.9e+03
27	13C-2,3,7,8-TCDD	3.56e+06	4.38e+03	8.1e+02	4.60e+06	2.35e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	6.22e+06	1.57e+03	4.0e+03	3.97e+06	8.08e+02	4.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.79e+06	1.86e+03	3.6e+03	5.45e+06	1.46e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.84e+06	1.86e+03	3.7e+03	5.55e+06	1.46e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.17e+06	1.69e+03	3.1e+03	4.89e+06	9.76e+02	5.0e+03
32	13C-OCDD	7.33e+06	1.22e+03	6.0e+03	8.30e+06	1.23e+03	6.8e+03
33	13C-1,2,3,4-TCDD	3.71e+06	4.38e+03	8.5e+02	4.71e+06	2.35e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.54e+06	1.86e+03	3.5e+03	5.22e+06	1.46e+03	3.6e+03
35	37Cl-2,3,7,8-TCDD	9.27e+05	1.92e+03	4.8e+02			

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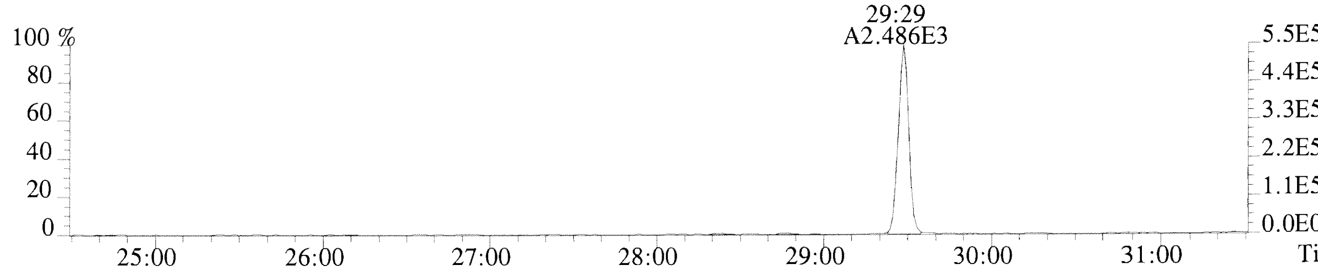
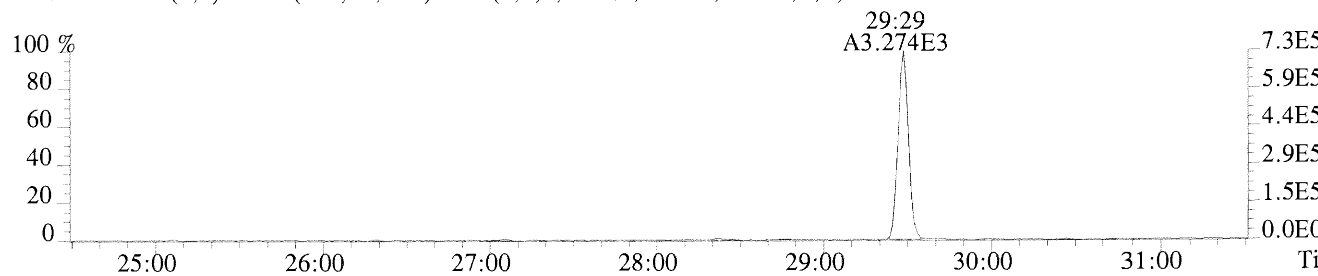
File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

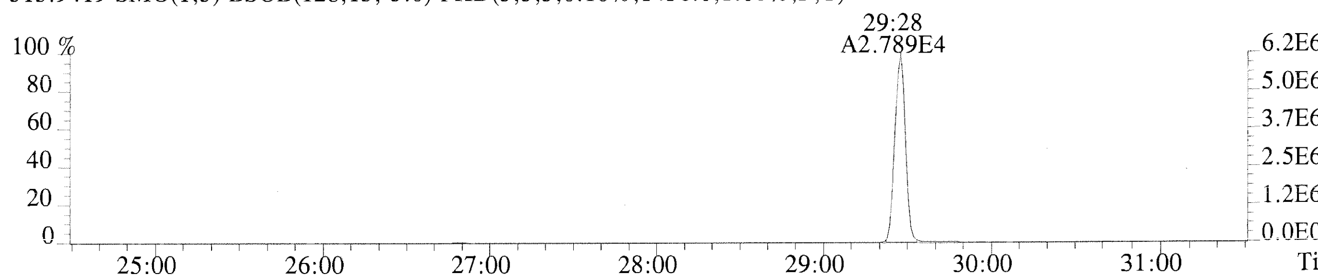
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



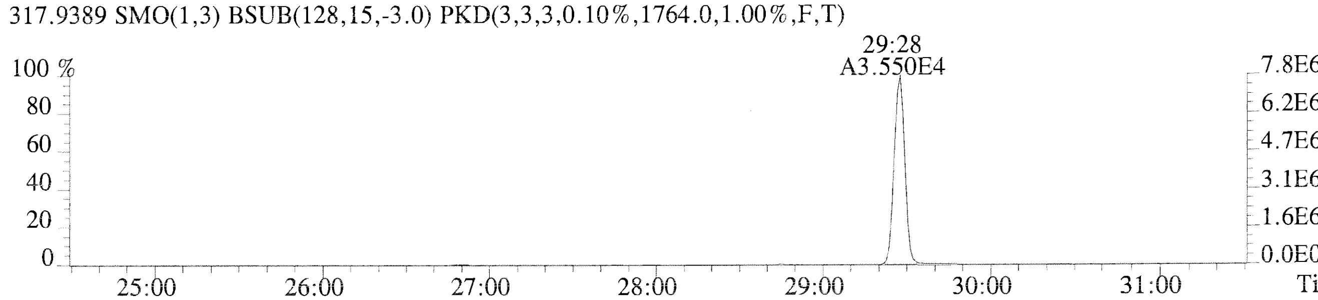
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



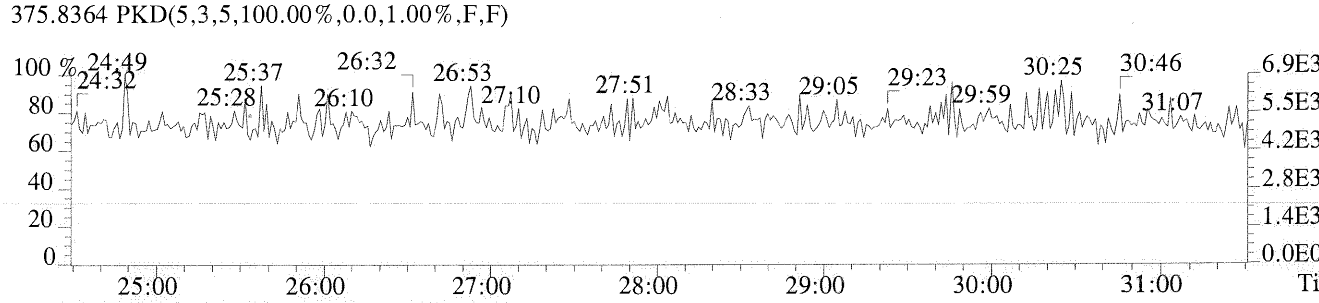
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



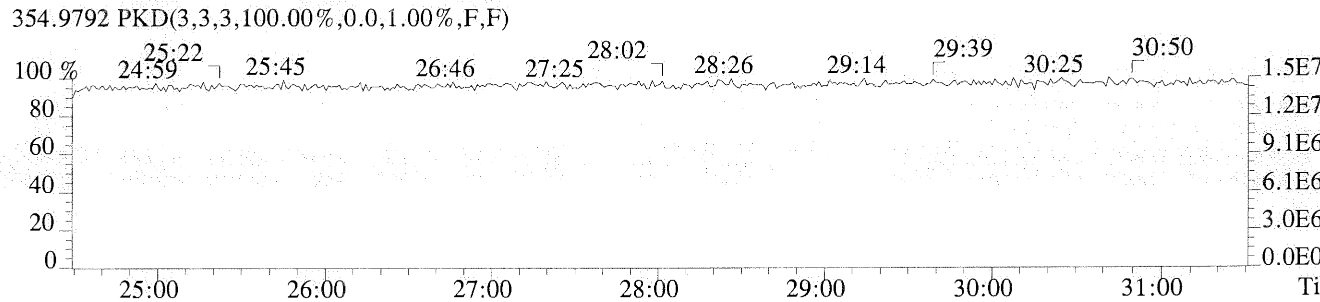
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



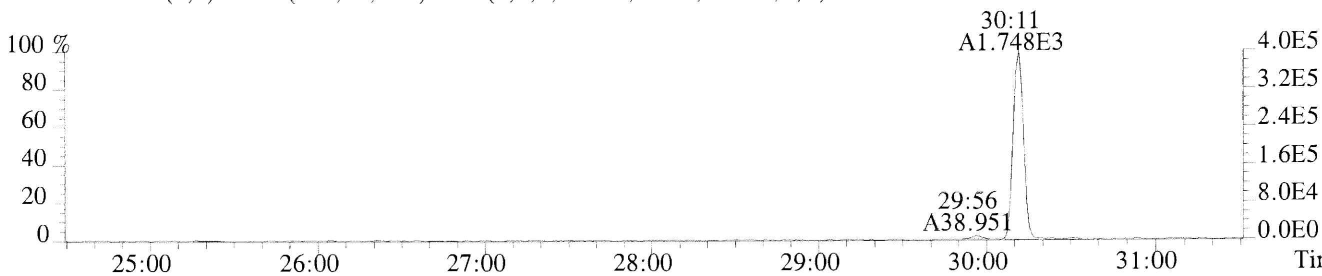
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



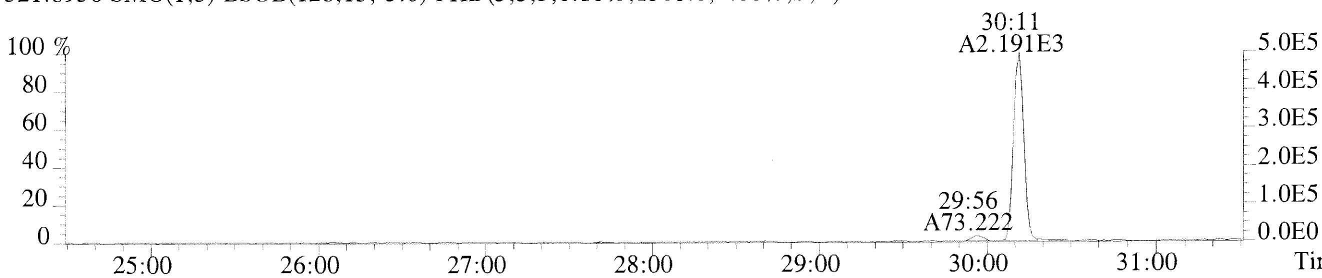
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



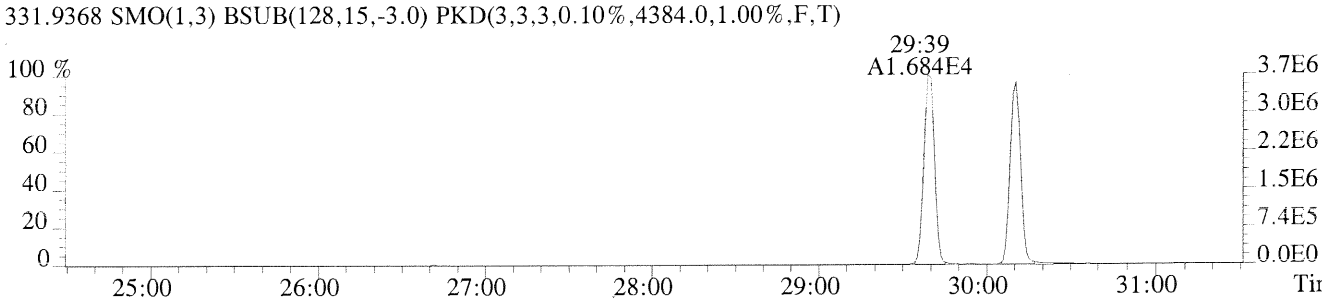
File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



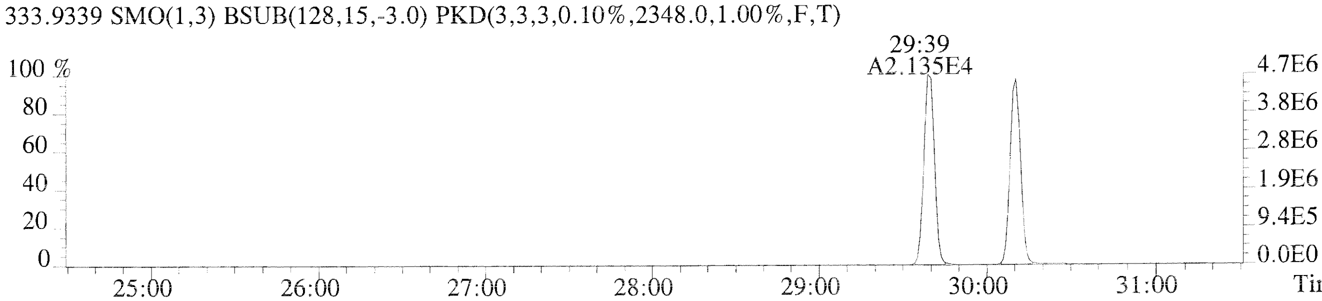
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



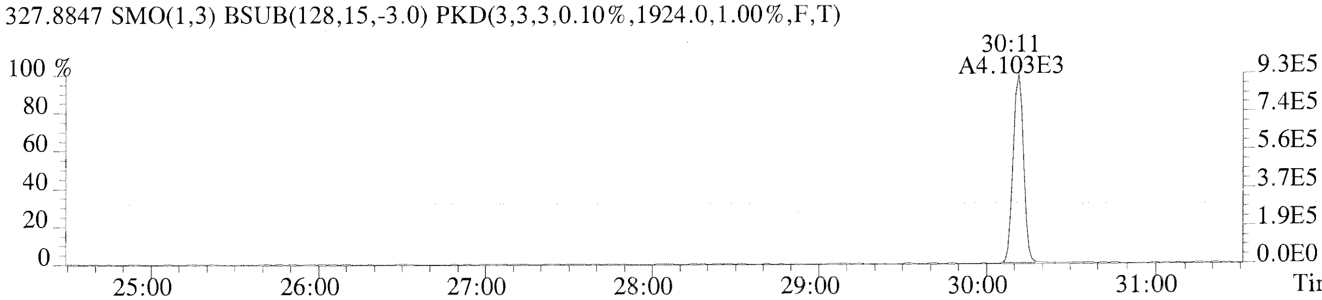
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4384.0,1.00%,F,T)



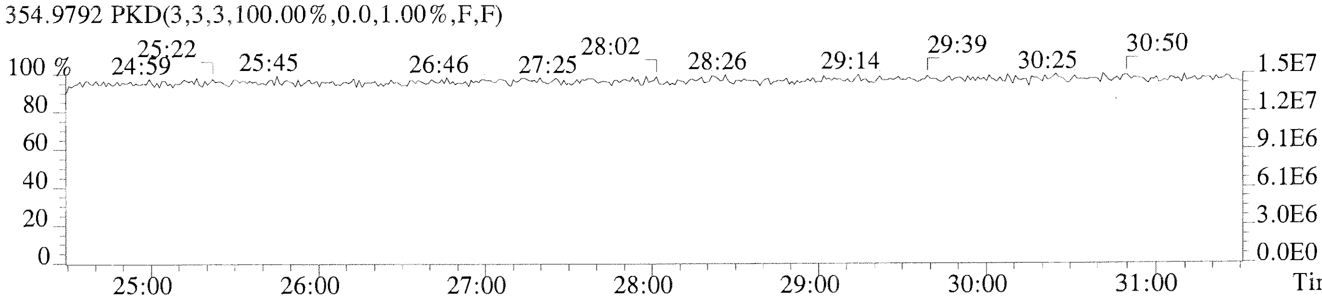
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2348.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)

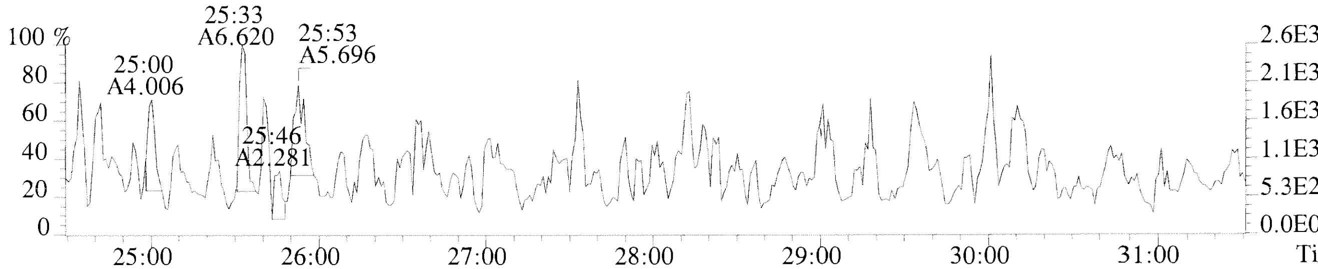


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

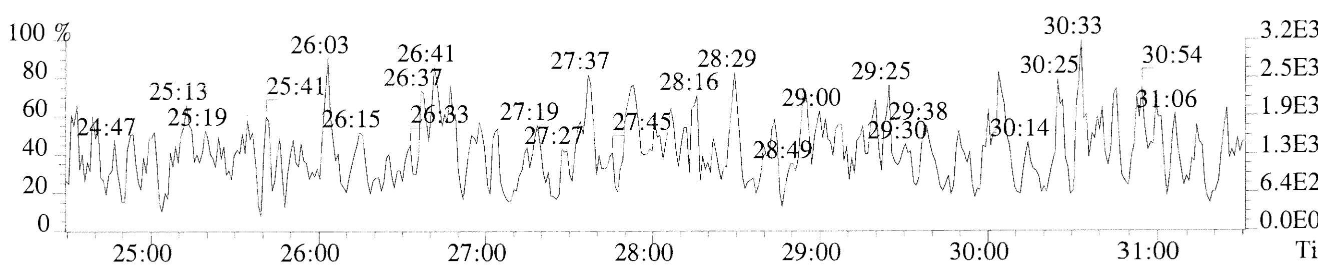


File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

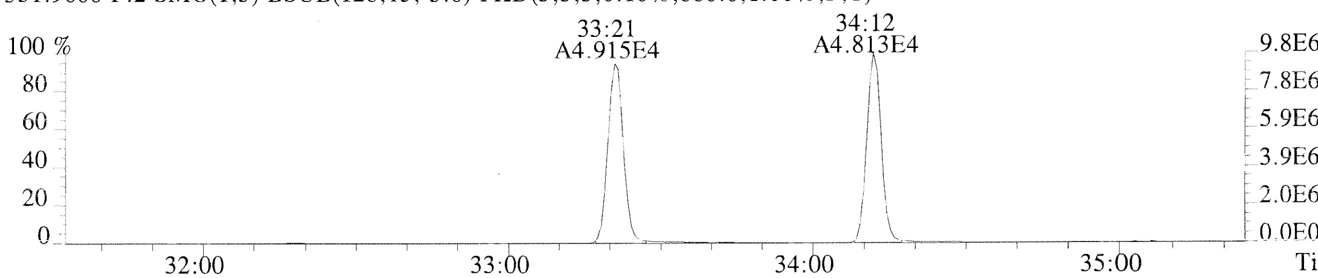
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



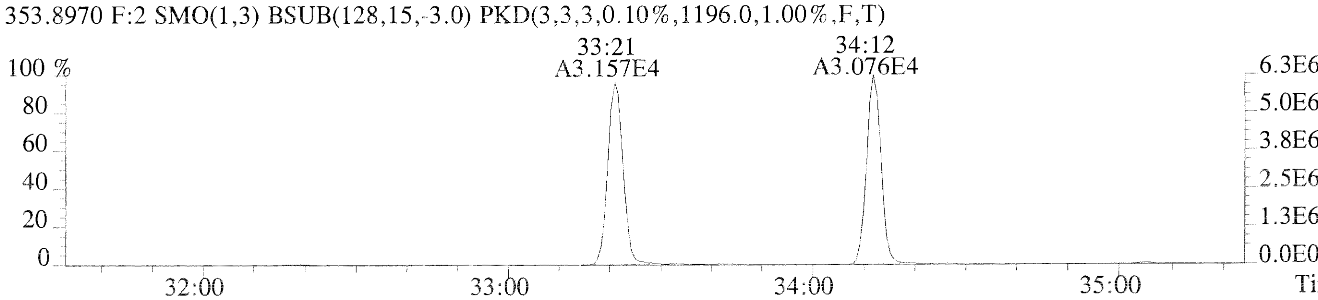
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



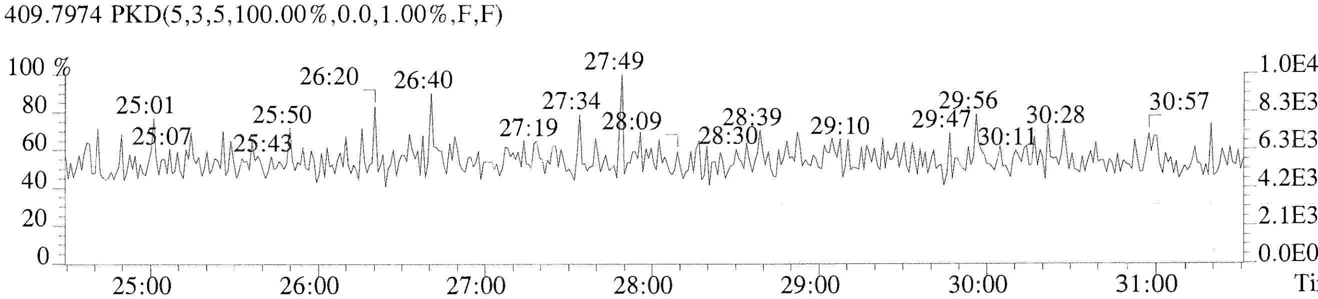
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



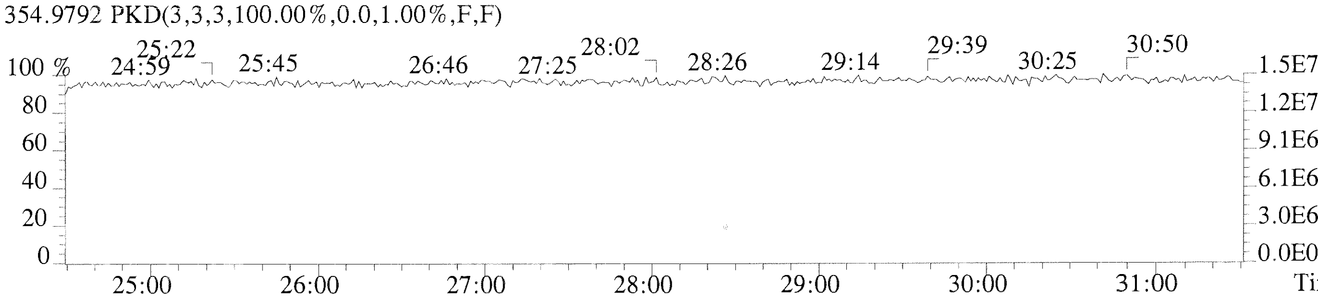
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



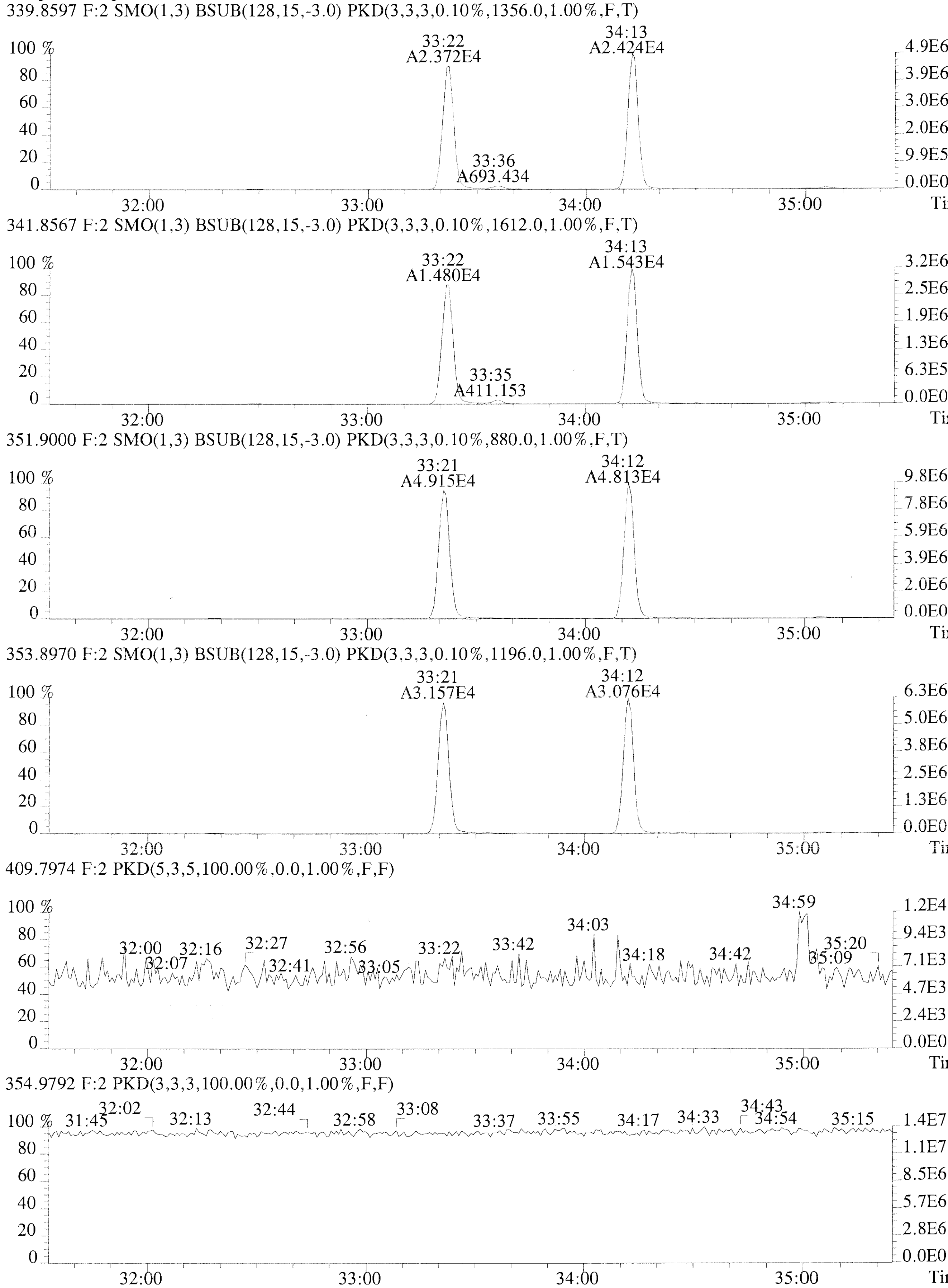
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

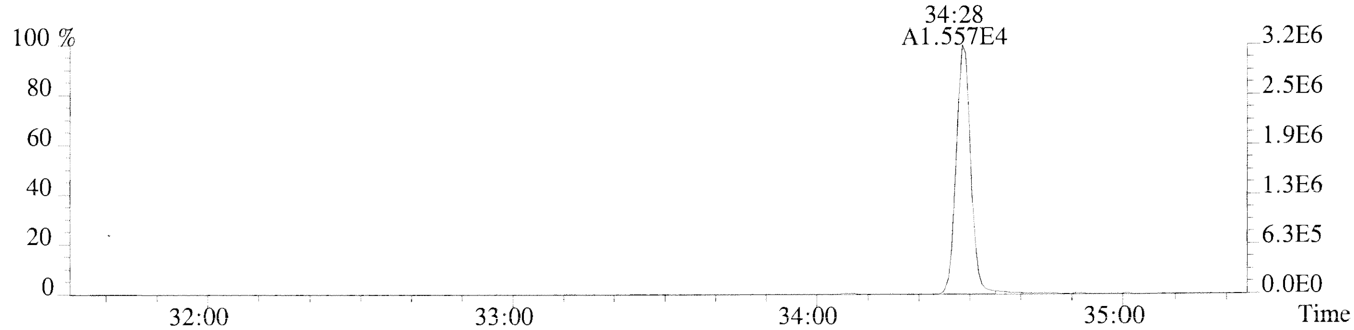


File:P169977 #1-350 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

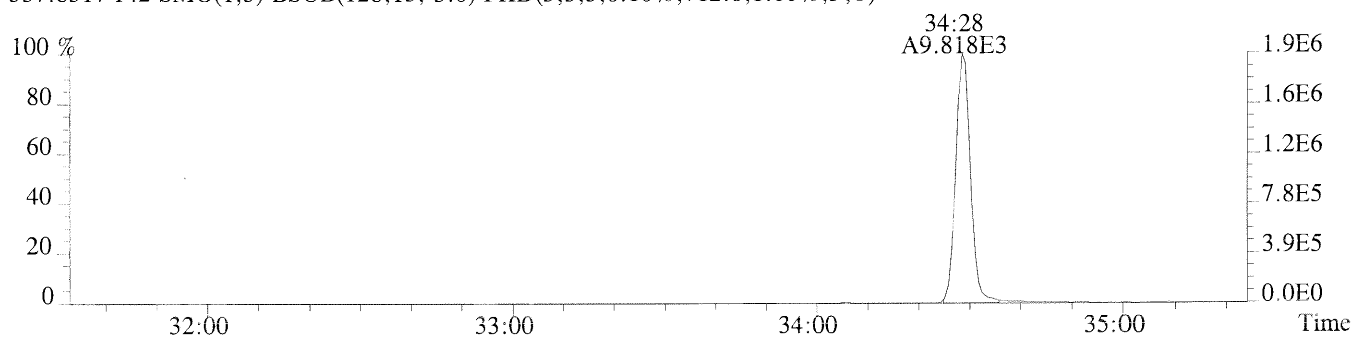


E1401160

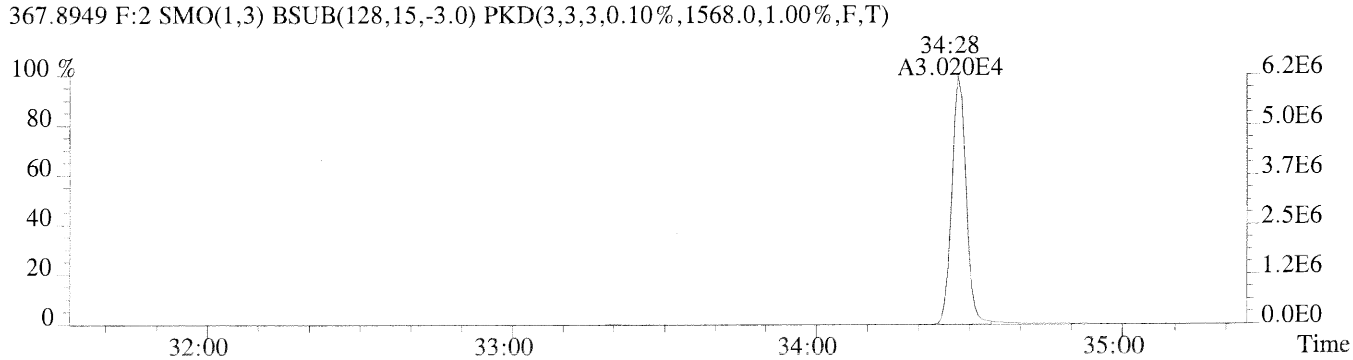
File:P169977 #1-350 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



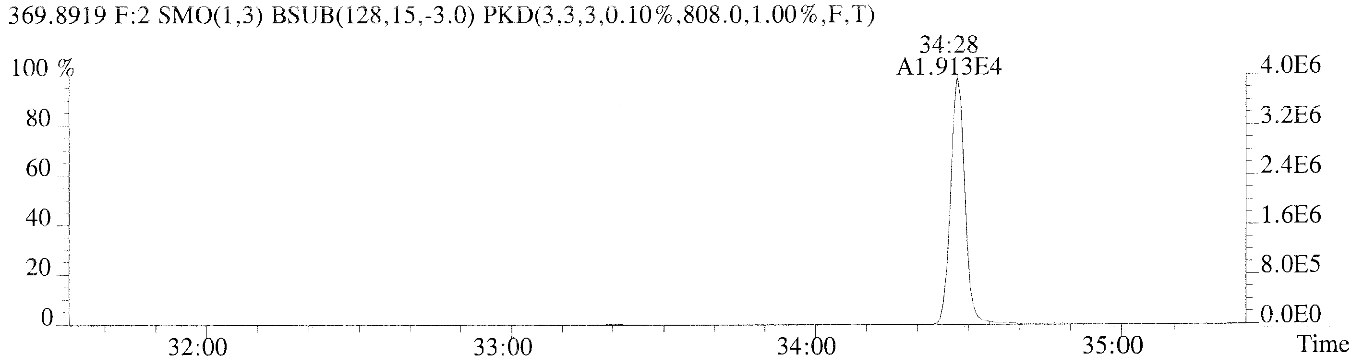
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



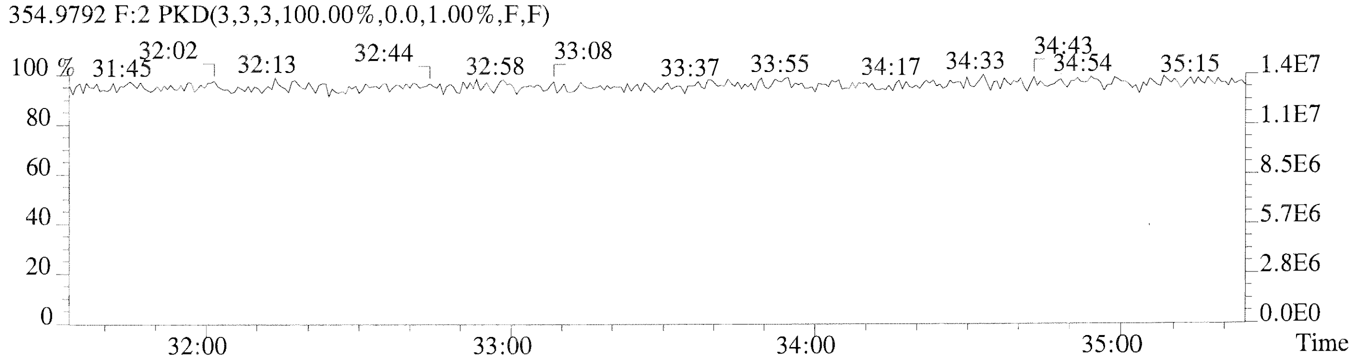
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



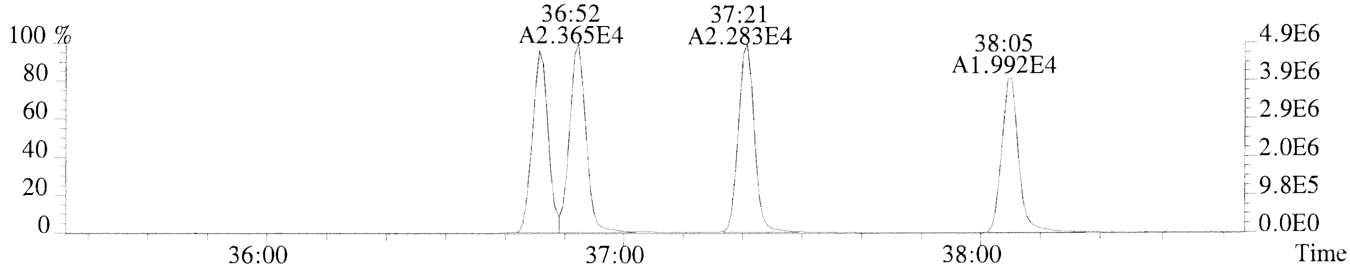
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



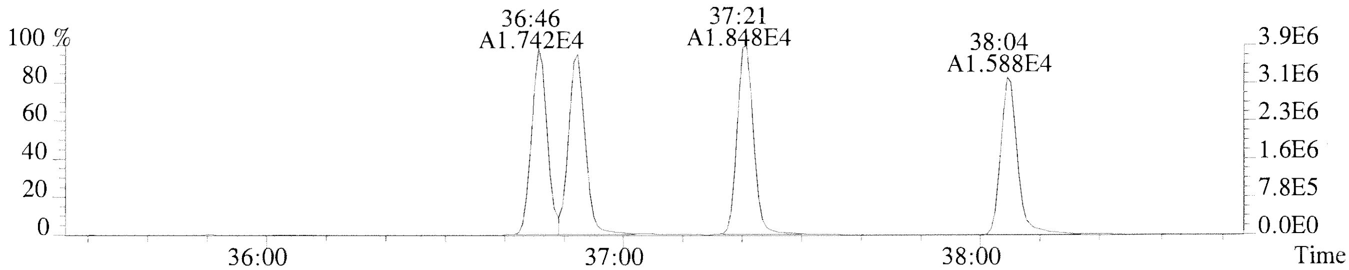
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



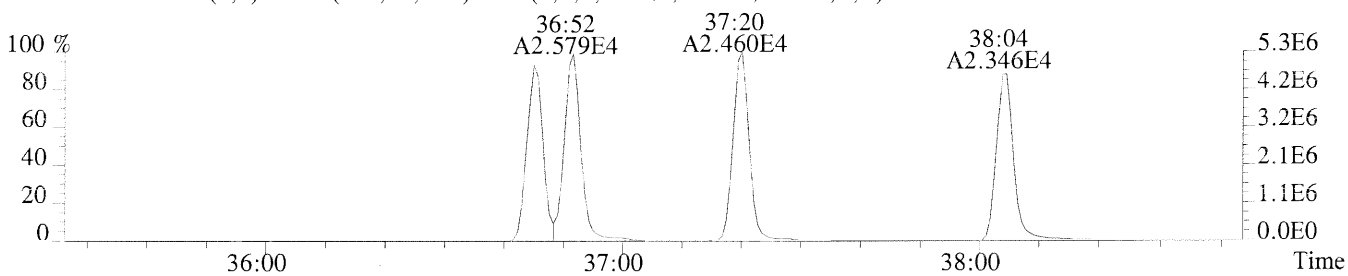
File:P169977 #1-299 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



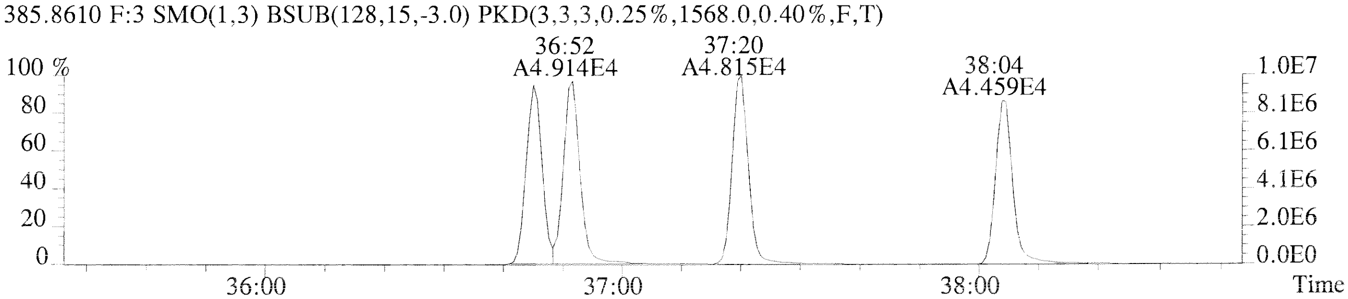
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



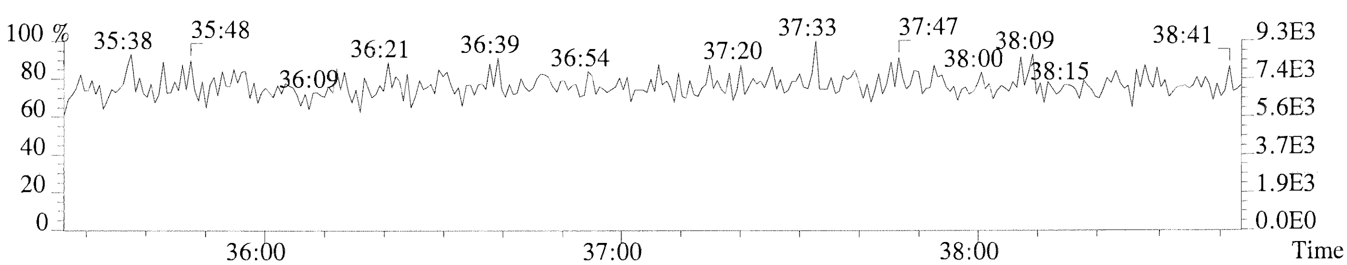
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



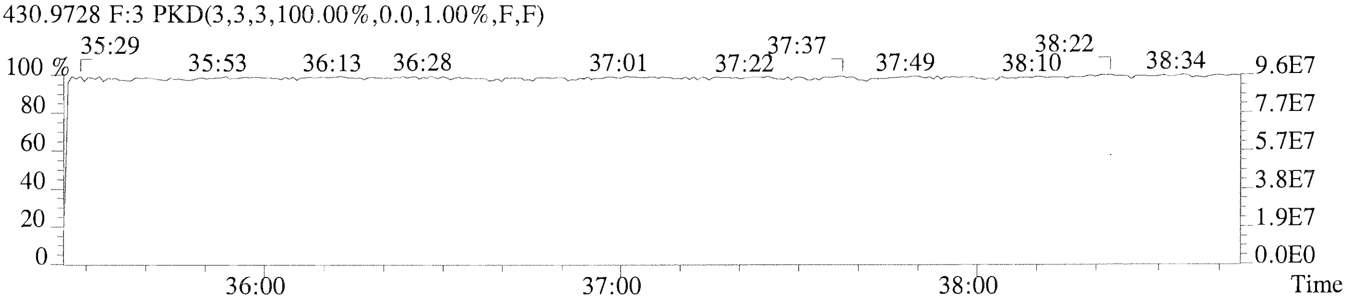
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



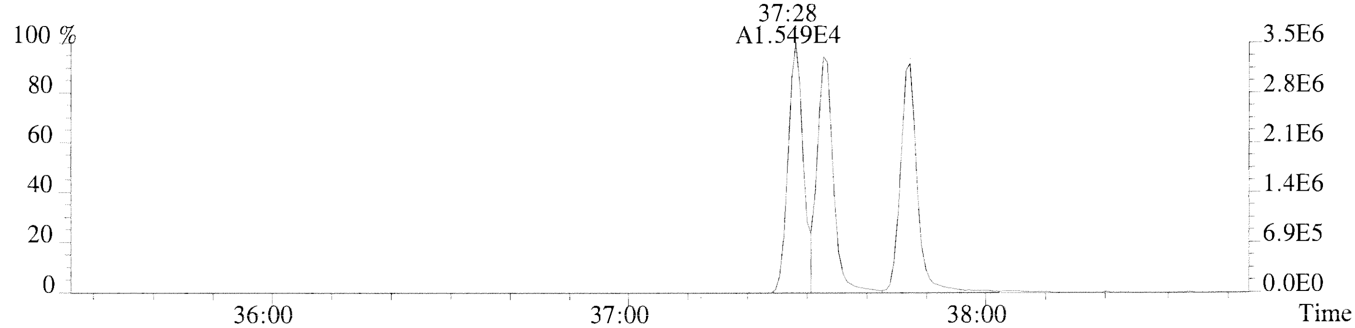
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



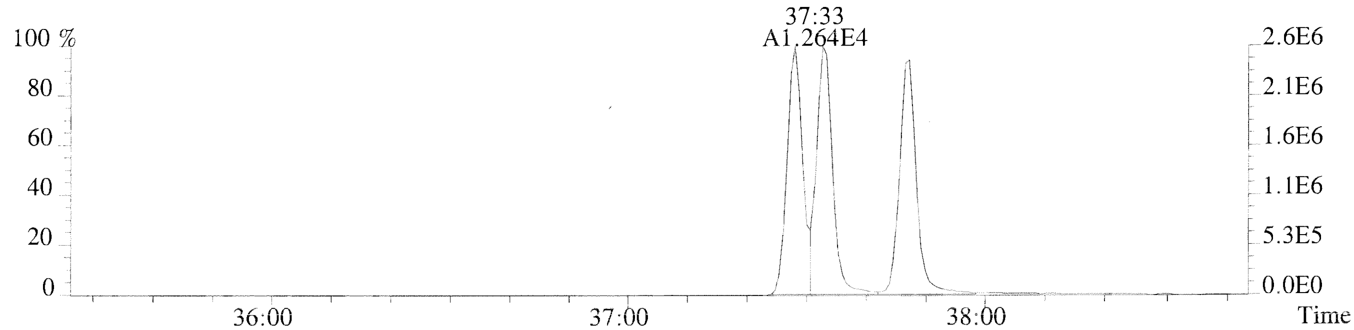
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



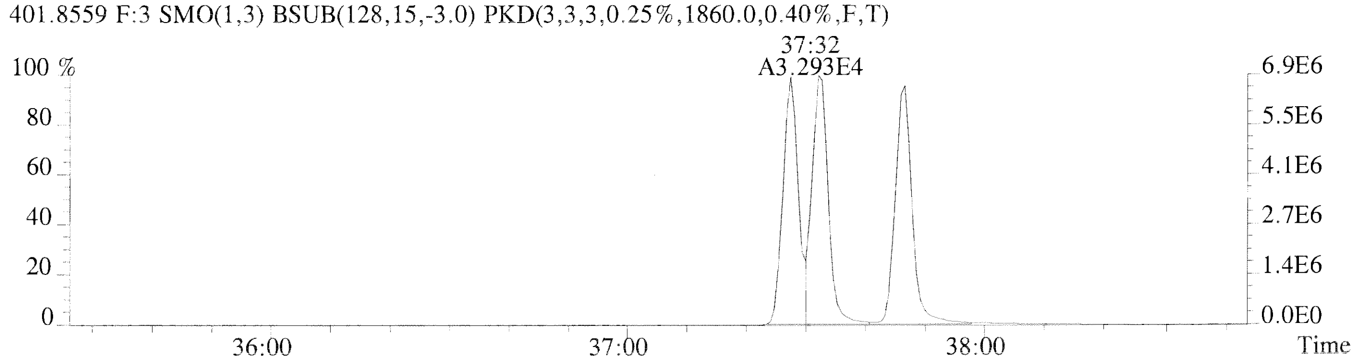
File:P169977 #1-299 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



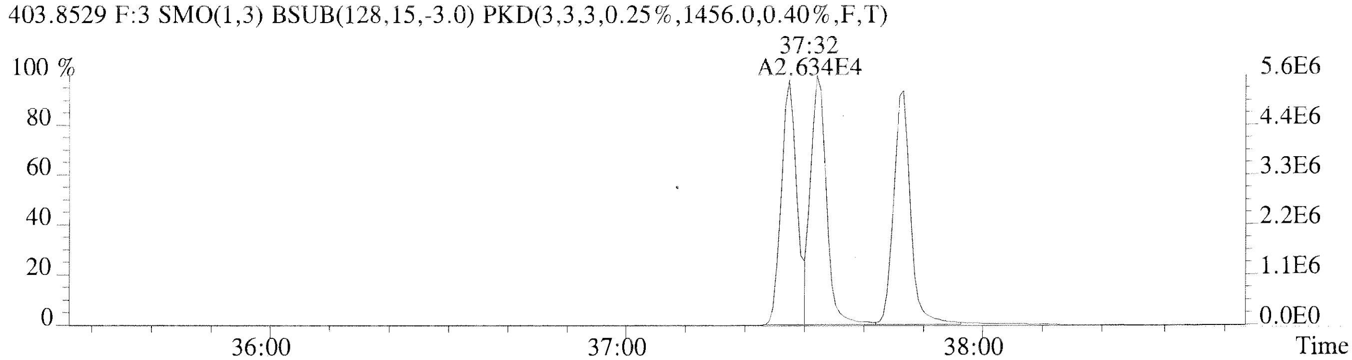
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



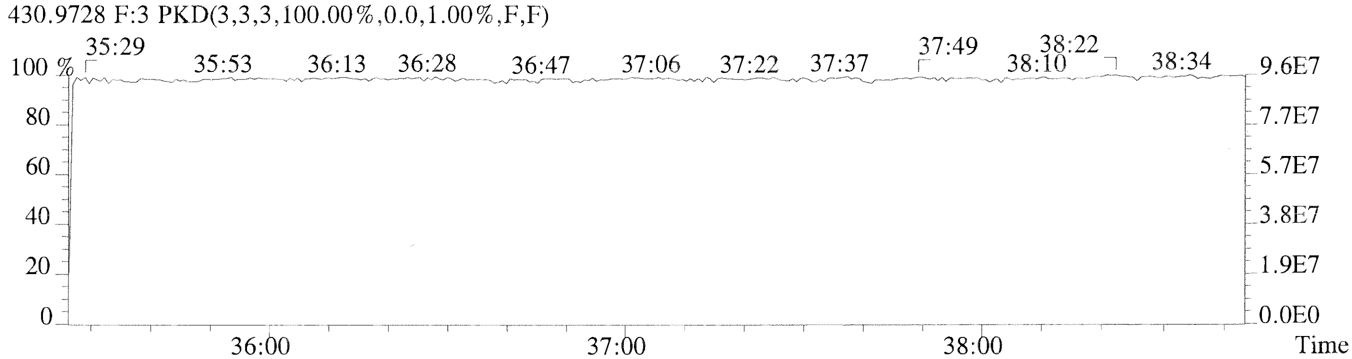
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)

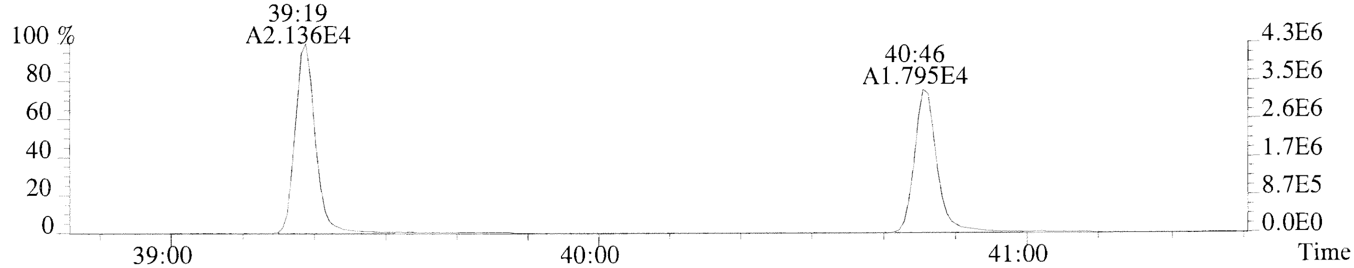


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

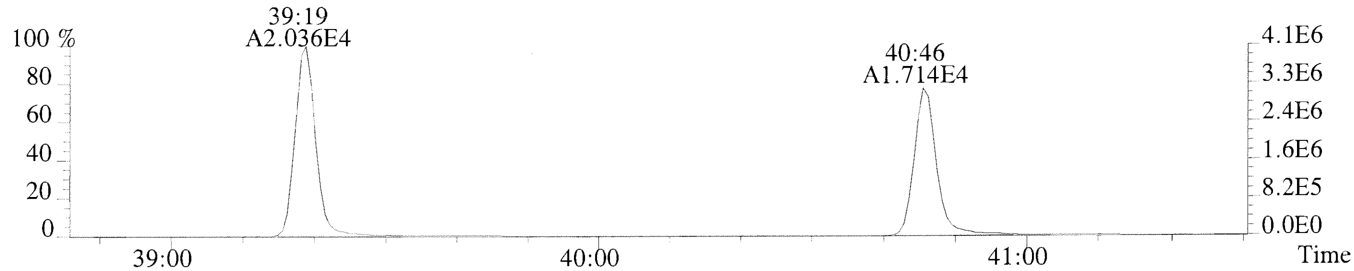


File:P169977 #1-250 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

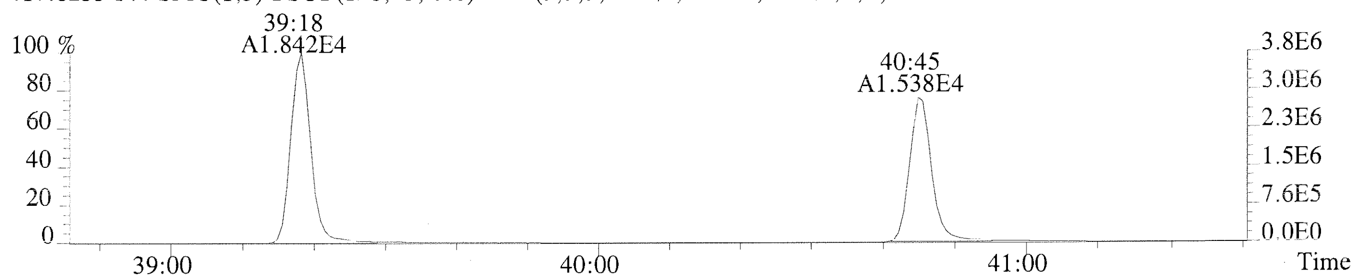
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



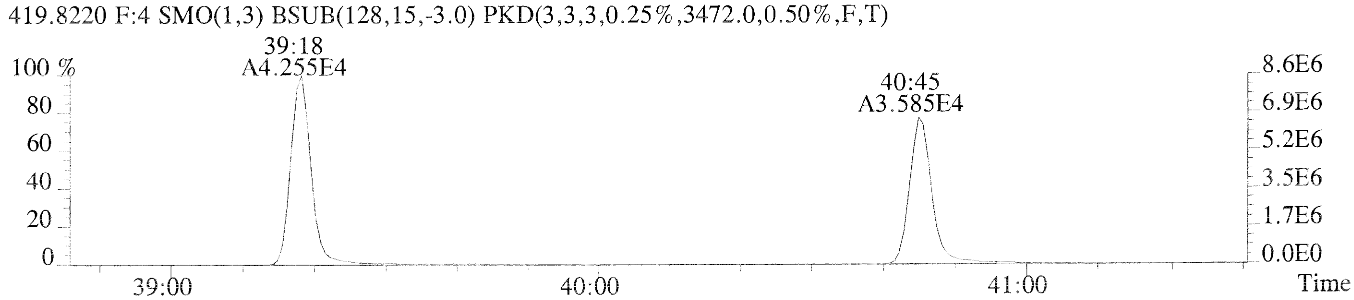
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.50%,F,T)



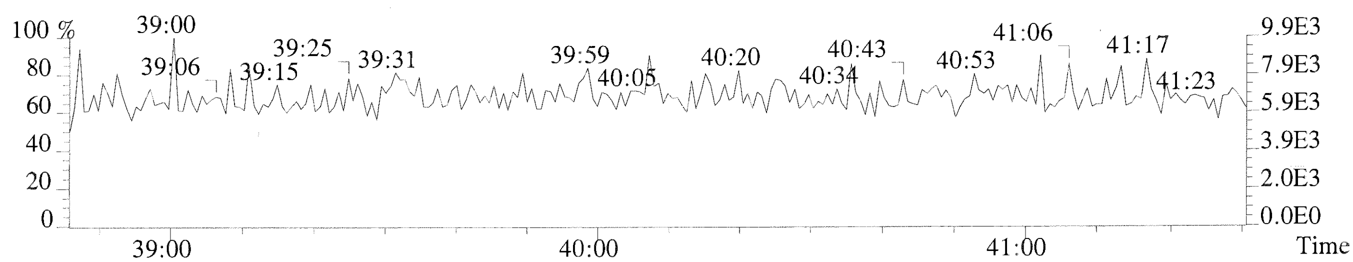
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3348.0,0.50%,F,T)



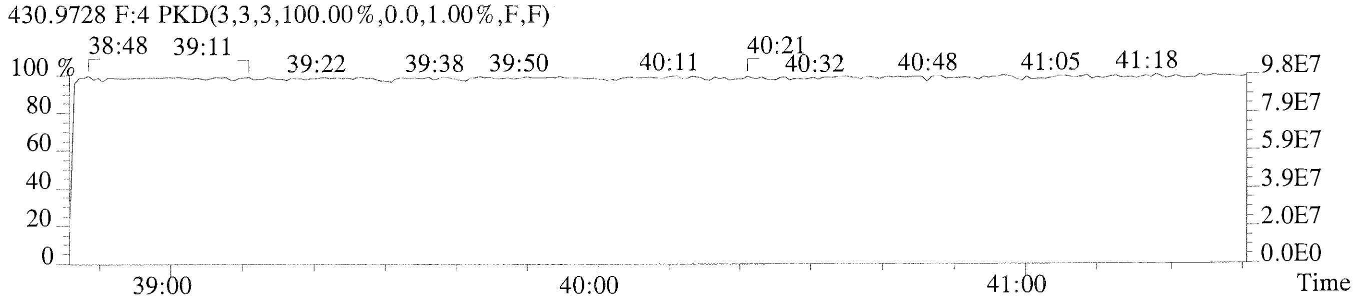
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3472.0,0.50%,F,T)



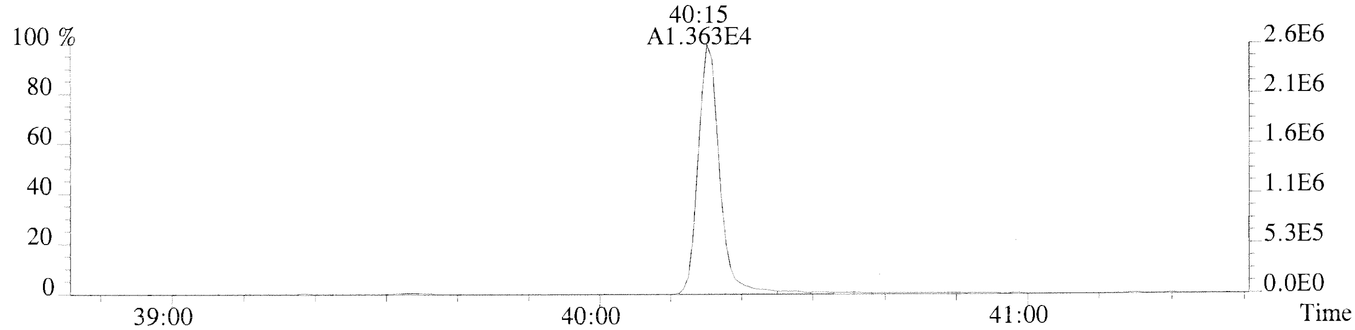
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



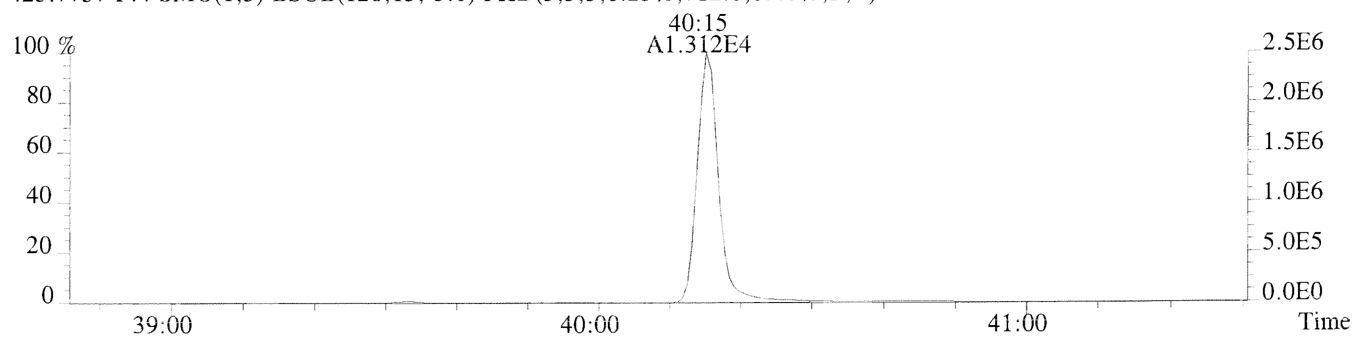
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



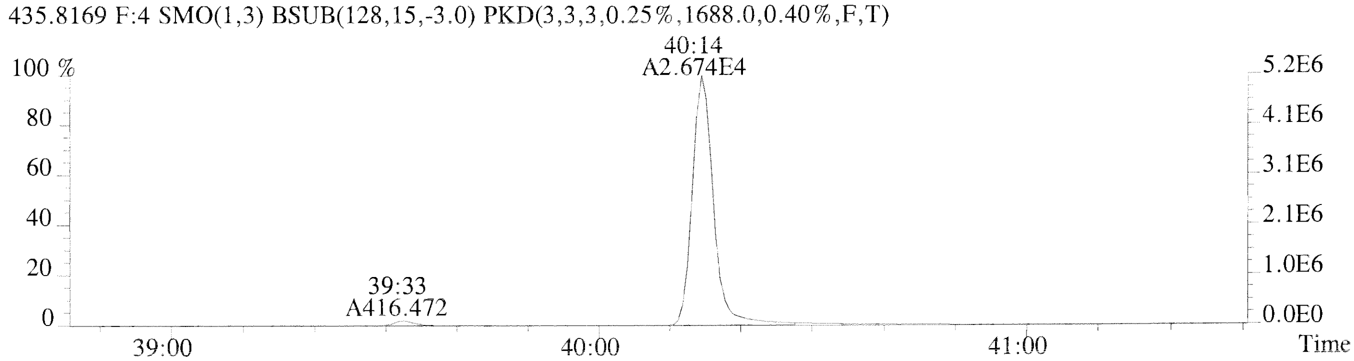
File:P169977 #1-250 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



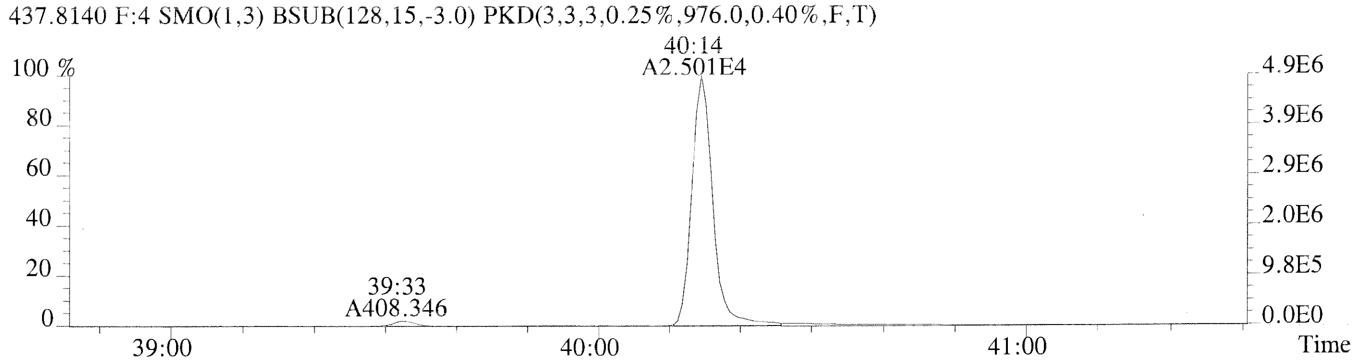
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



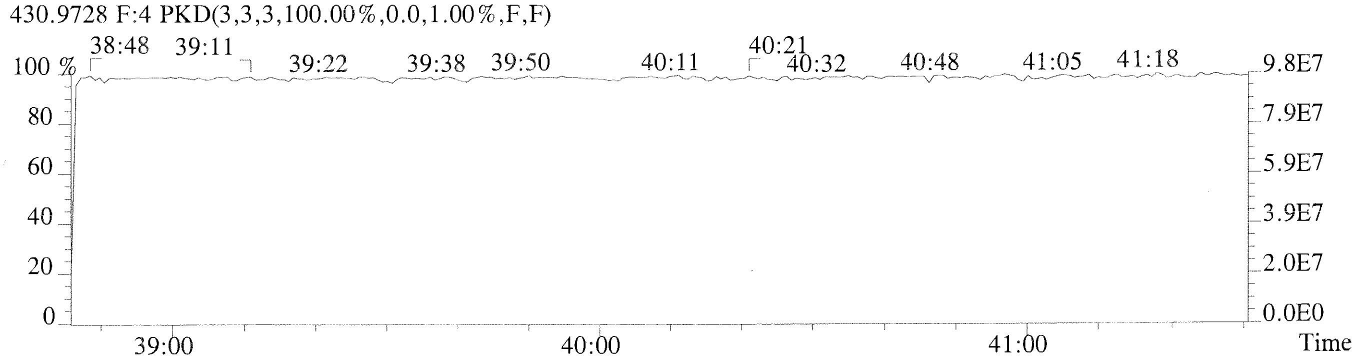
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



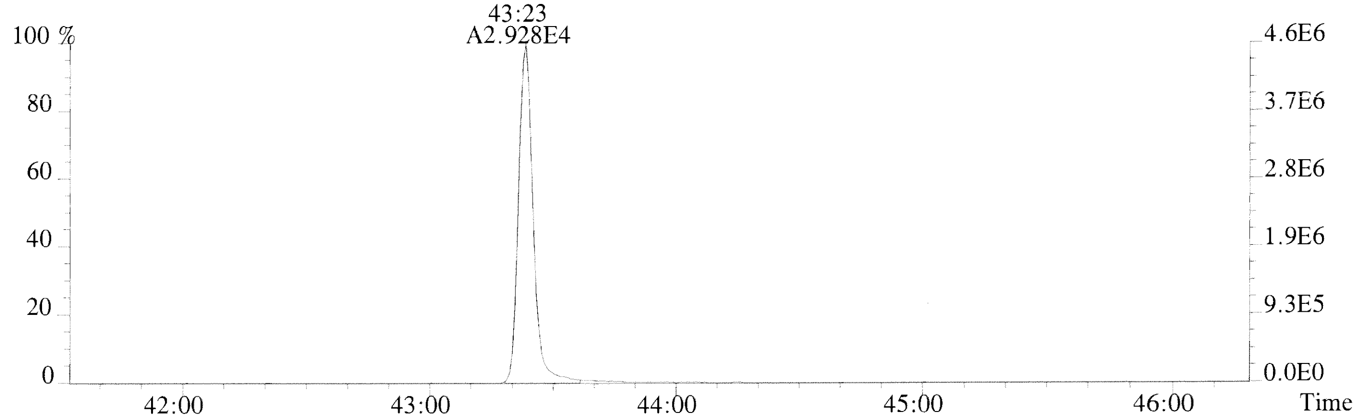
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



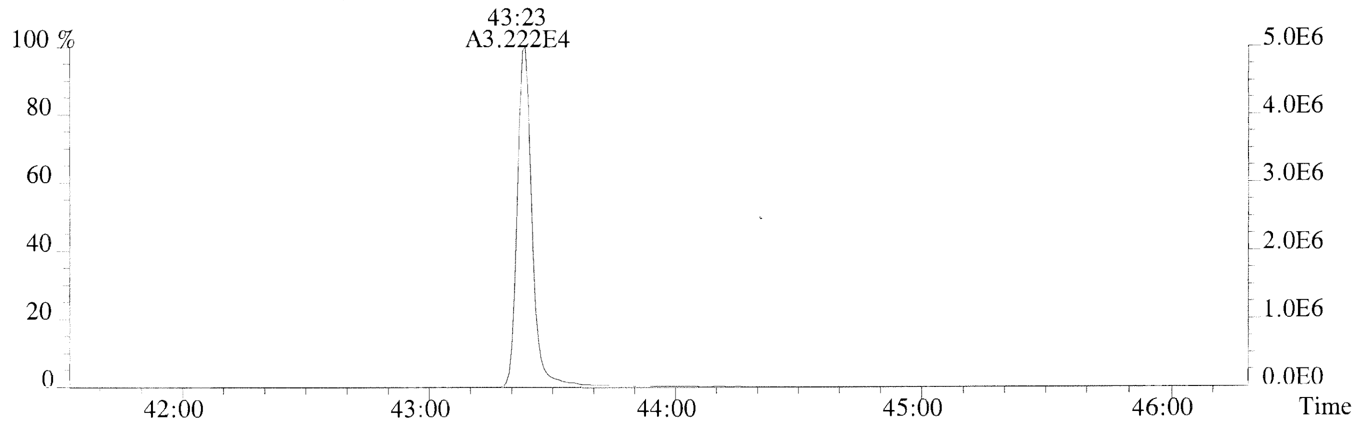
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



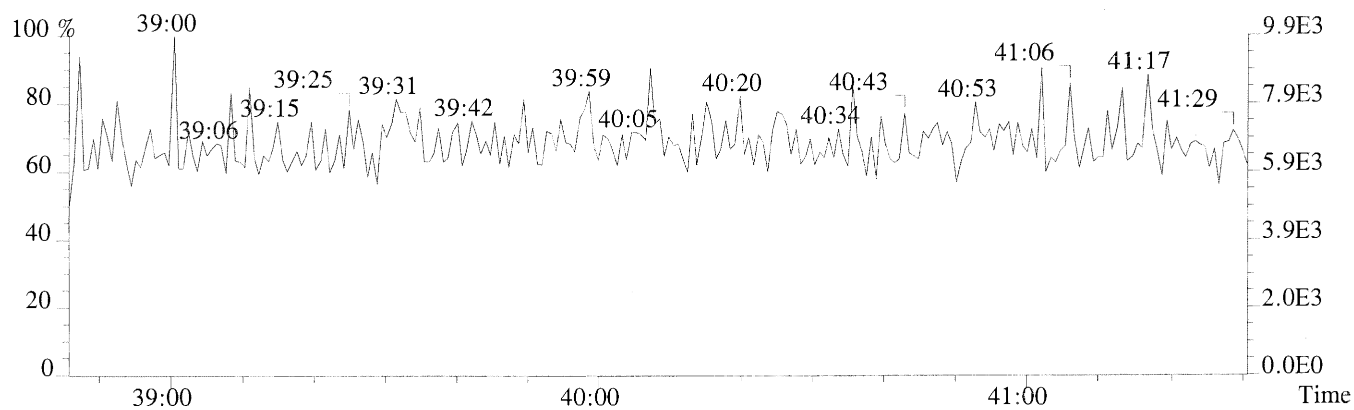
File:P169977 #1-438 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1516.0,0.40%,F,T)



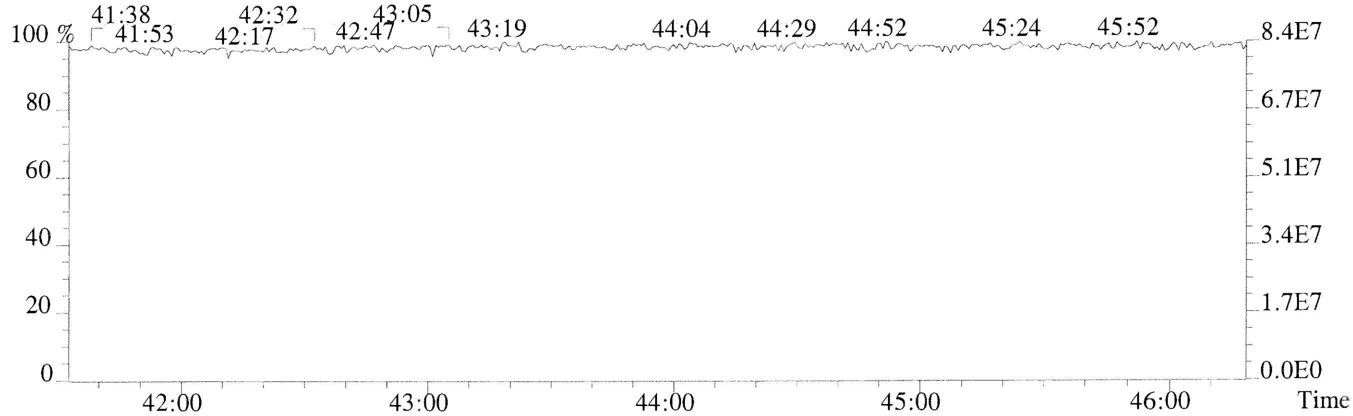
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2104.0,0.40%,F,T)



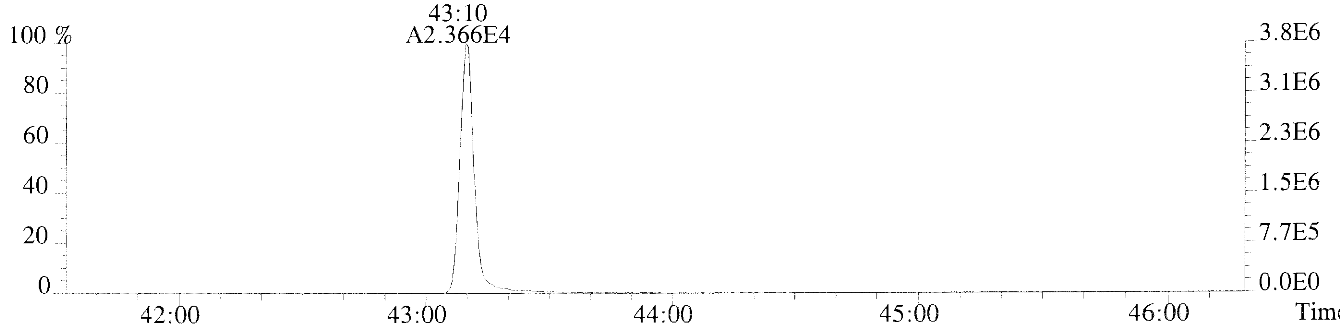
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



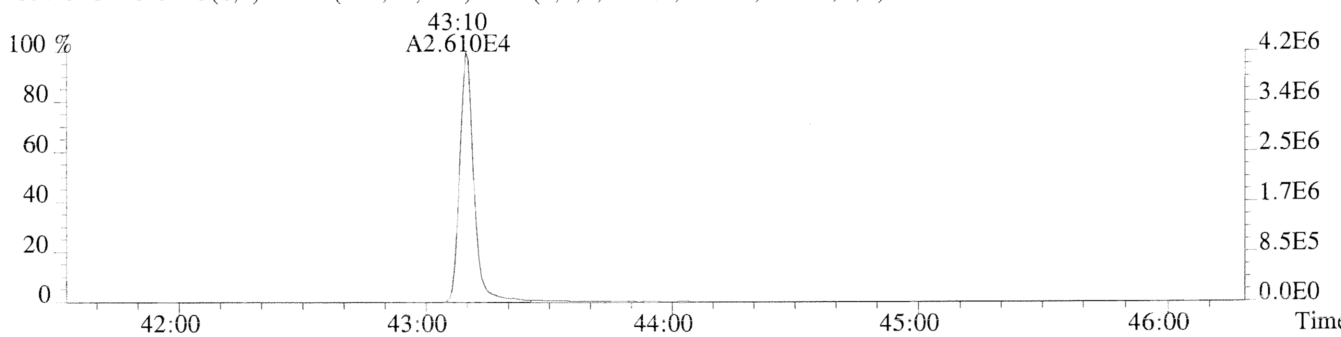
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



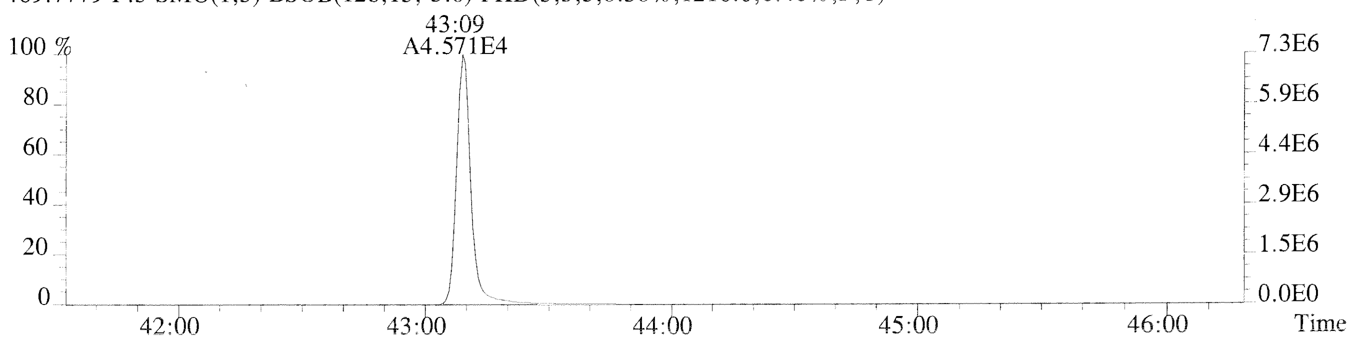
File:P169977 #1-438 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1060.0,0.40%,F,T)



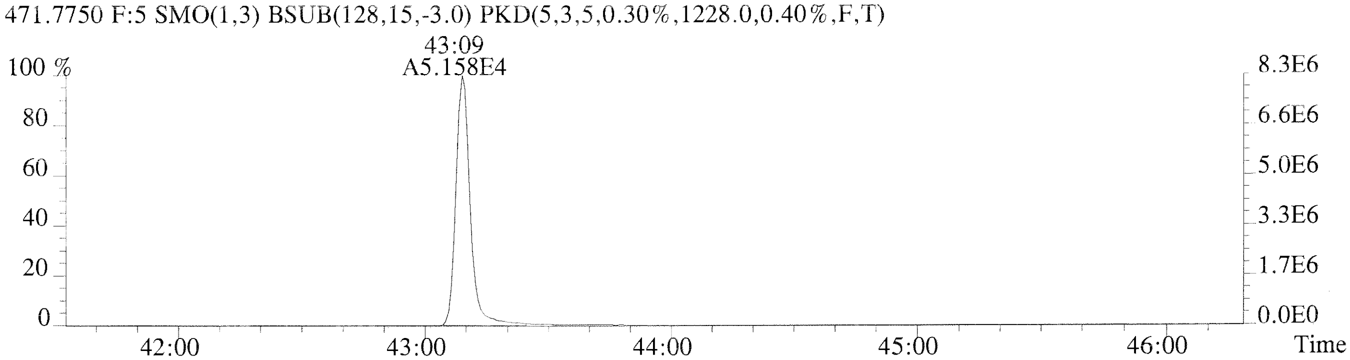
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1952.0,0.40%,F,T)



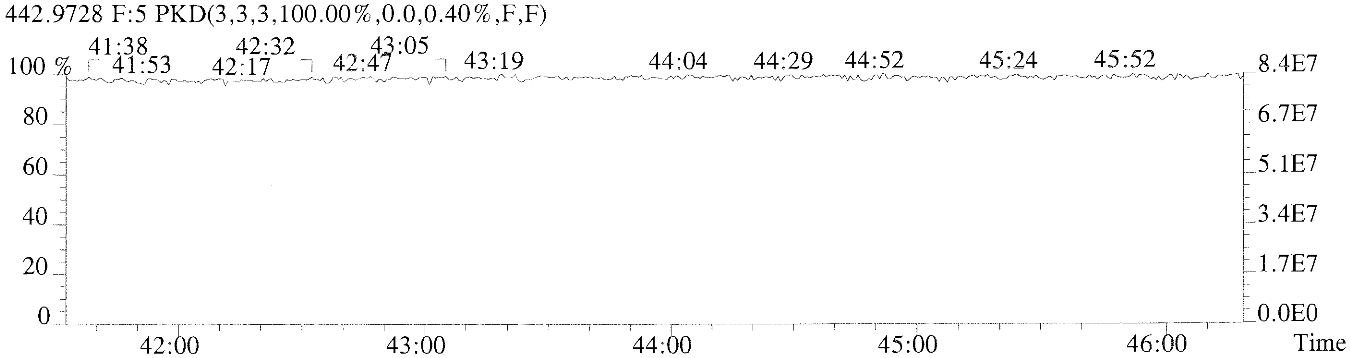
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 08/25/2014
Instrument Name: E-HRMS-04	Calibration File Name: P1408241613I
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	X				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	X				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	X				
Were all calibration standards analyzed only once?	X				
Was the ICV analyzed after the ICAL, before analyzing samples?	X				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	X				
Were all target masses >10,000 resolving power at the beginning of the sequence?	X				
Were all target masses >10,000 resolving power at the end of the sequence?	X				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			X		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			X		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	X				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	X				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	X				
Were all first and last eluters adequately resolved in each function?	X				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			X		
Was the retention time of PCB 209 >55 min?			X		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			X		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			X		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	X				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			X		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	X				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	X				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 08/25/2014				
Instrument Name: E-HRMS-04	Calibration File Name: P14082416131				
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong				
Description	**Yes**	**No**	**NA**	**NR**	**ER#**
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	X				
Were area counts for the highest calibration standard below levels of saturation?	X				
Were manual integrations technically justified to correct for poor software integration?	X				1
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	X				
Were all calibration standards used in determining response factors?	X				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	X				
Did the RSD for RRFs for each native analyte meet method criteria?	X				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	X				
Were RFs for each labeled compound calculated for each calibration point?	X				
Did the RSD for RF for each labeled compound meet method criteria?	X				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	X				
Did all analytes meet method criteria for the ICV.	X				

Laboratory Review Checklist: Initial Calibration	
Method: 1613/8290	Process Date: 08/25/2014
Instrument Name: E-HRMS-04	Calibration File Name: P14082416131
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong
ER# 5	**Description**
1	Manual Integration on CS0.5, CS4, CS5 in order to correct inconsistent baseline determinations between primary and secondary ions. Before and After chromatograms provided. Where no "After" is present, modification flag reflects an update to reconcile Response values between Sample Response Summary and chromatograph.
NA = Not Applicable; NR = Not Reviewed; R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).	

Initial Calibration QC Checklist

ICAL Name: P140824 1613I

Date: 08/24/14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / M23

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: JC

Second QC: LKL

icalqc.xls 10-30-2012

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 08/24/14

Init. Calib.Times: 09:48:48

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P230728	24-AUG-14	09:48:48
CS0.5	66807	P230730	24-AUG-14	11:23:08
CS1	66798	P230731	24-AUG-14	12:10:54
CS2	D12-90-3B	P230732	24-AUG-14	12:58:46
CS3	63383	P230733	24-AUG-14	13:46:32
CS4	D12-90-3D	P230734	24-AUG-14	14:34:24
CS5	66799	P230735	24-AUG-14	15:22:09
CS5	54819	P230736	24-AUG-14	16:10:02

E1401160

545 of 659

07 798

Sample List Report	MassLynx 4.1	
Sample List:	C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140824.SPL	Page 1 of 4
Last Modified:	Sunday, August 24, 2014 09:43:19 Central Daylight Time	
Printed:	Sunday, August 24, 2014 09:43:32 Central Daylight Time	Page Position (1, 1)

D:\P140824161 3 I

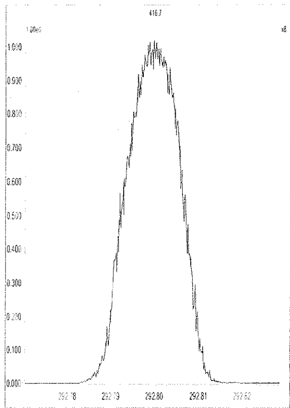
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	08/24/14	08:50	P230727	CCAL HRCC3/CS3	72675	[illegible]	HRMS Check 0846	8290CAS
2		09:48	P230728	WINDOW DEFINE	63680			8290CAS
3		10:35	P230729	NONANE BLANK	NONANE BLANK			8290CAS
4		11:23	P230730	ICAL CS0.5	66807			8290CAS
5		12:10	P230731	ICAL CS1	66798			8290CAS
6		12:58	P230732	ICAL CS2	D12-90-3B			8290CAS
7		13:46	P230733	ICAL CS3	63383			8290CAS
8		14:34	P230734	ICAL CS4	D12-90-3D			8290CAS
9		15:22	P230735	ICAL CS5	66799			8290CAS
10		16:10	P230736	2ND SOURCE CCV	54819		HRMS Check 13:44	8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			8290CAS
29			---	---	---			TCDFCAS
30	---	---	---	---	---			8290CAS
31	---	---	---	---	REVIEWED BY: JC	---	---	8290CAS
32	---	---	---	---	---	---	---	8290CAS
33	---	---	---	---	--- 08/25/14	---	---	8290CAS
34	---	---	---	---	---	---	---	8290CAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	8290CAS

07

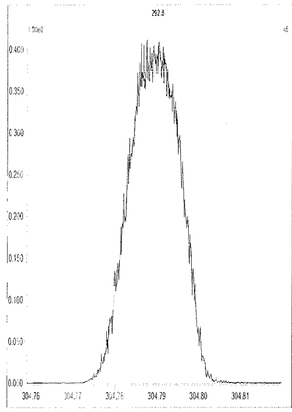
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, August 24, 2014 08:46:55 Central Daylight Time

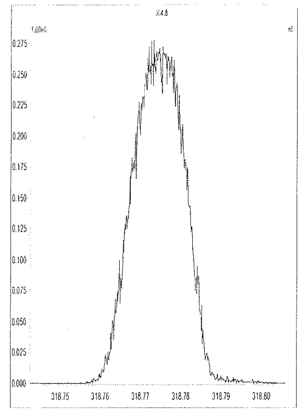
M 292.9824 R 12200



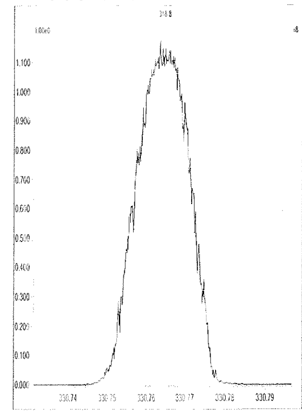
M 304.9824 R 12132



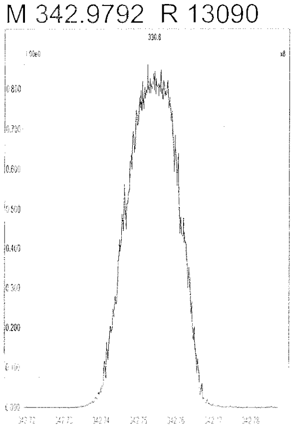
M 318.9792 R 12077



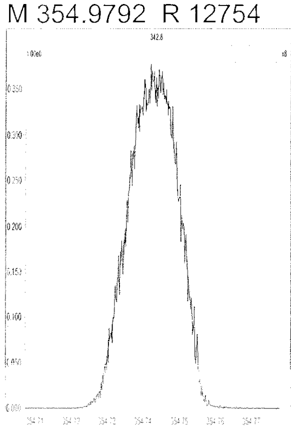
M 330.9792 R 12624



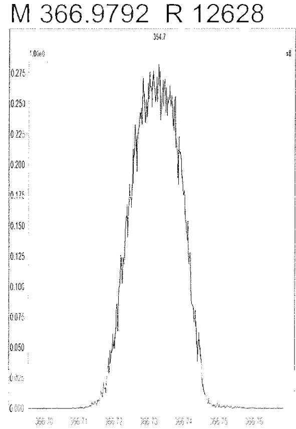
M 342.9792 R 13090



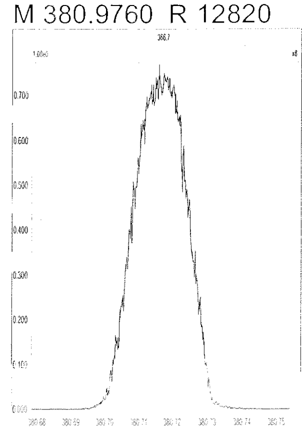
M 354.9792 R 12754



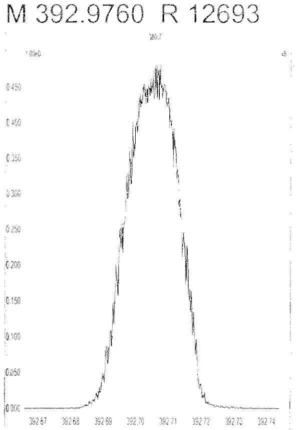
M 366.9792 R 12628



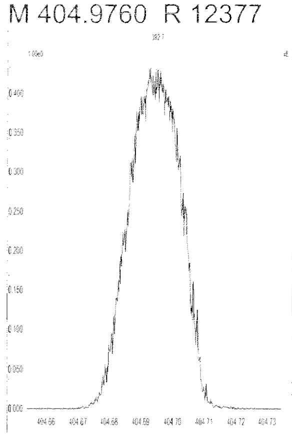
M 380.9760 R 12820



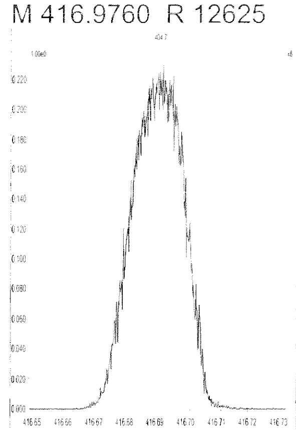
M 392.9760 R 12693



M 404.9760 R 12377



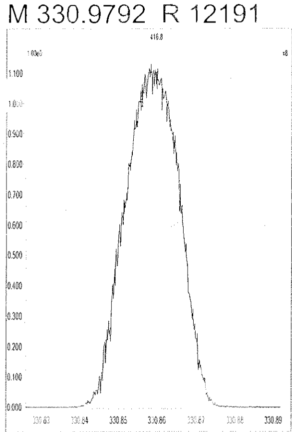
M 416.9760 R 12625



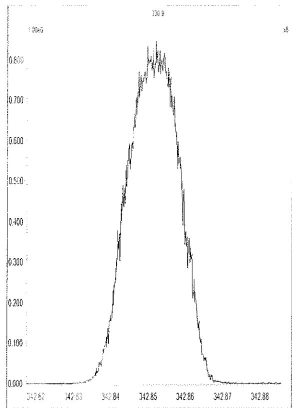
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, August 24, 2014 08:47:15 Central Daylight Time

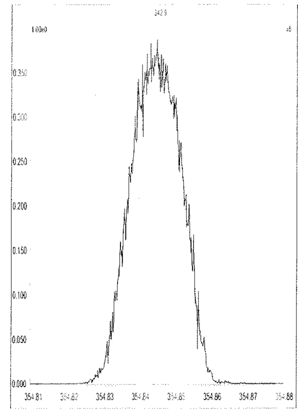
M 330.9792 R 12191



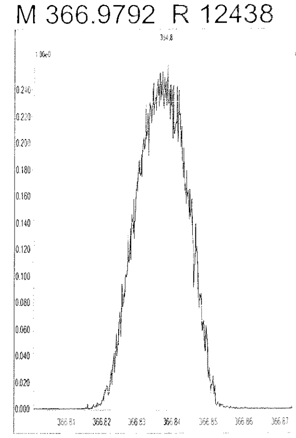
M 342.9792 R 11847



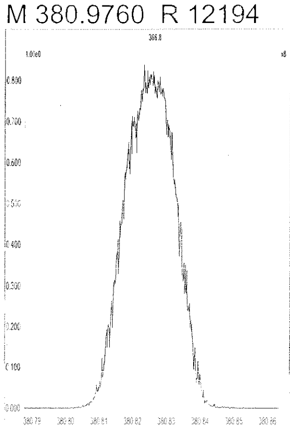
M 354.9792 R 12192



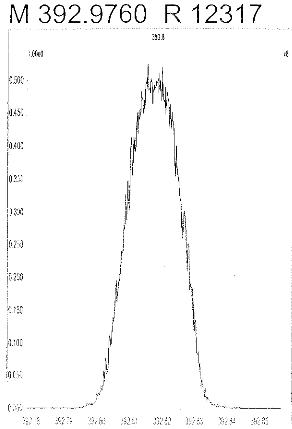
M 366.9792 R 12438



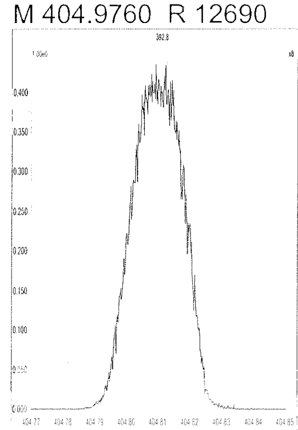
M 380.9760 R 12194



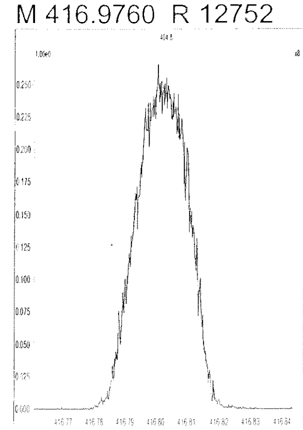
M 392.9760 R 12317



M 404.9760 R 12690



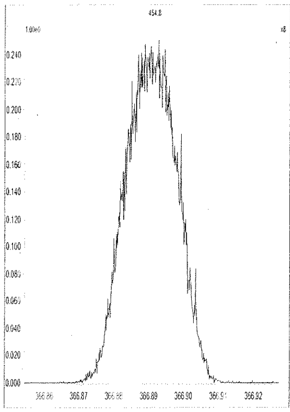
M 416.9760 R 12752



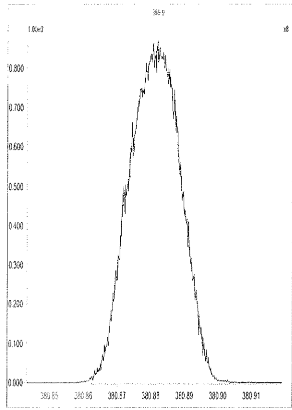
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, August 24, 2014 08:47:38 Central Daylight Time

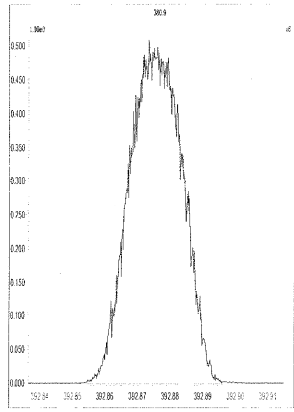
M 366.9792 R 11684



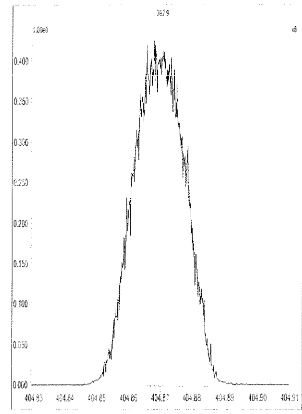
M 380.9760 R 11793



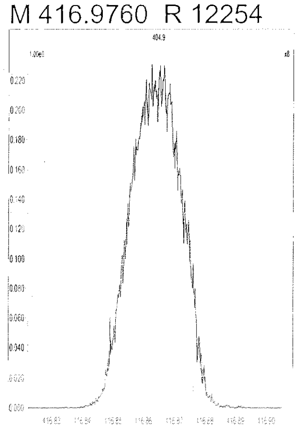
M 392.9760 R 11519



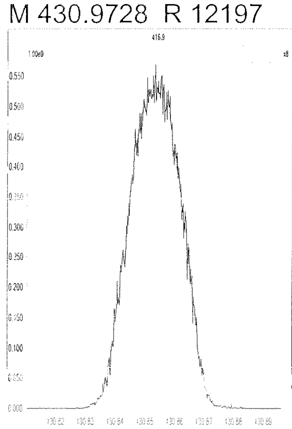
M 404.9760 R 12251



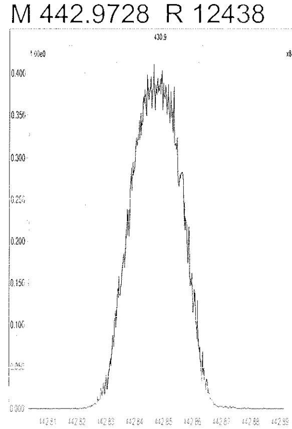
M 416.9760 R 12254



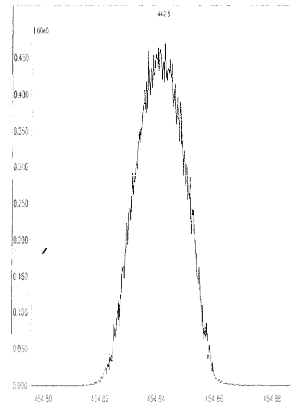
M 430.9728 R 12197



M 442.9728 R 12438



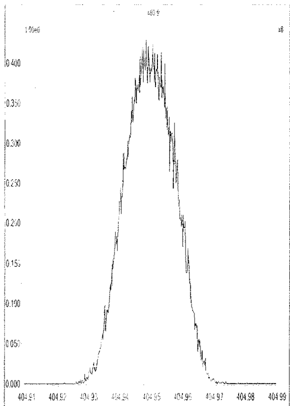
M 454.9728 R 12437



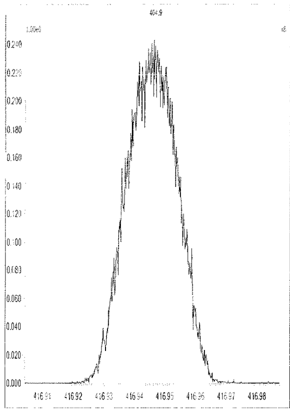
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, August 24, 2014 08:48:02 Central Daylight Time

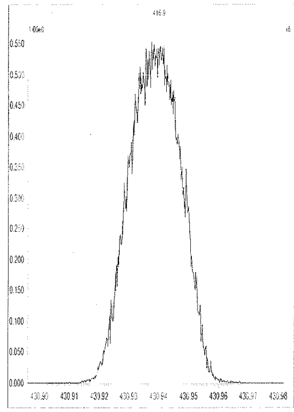
M 404.9760 R 11627



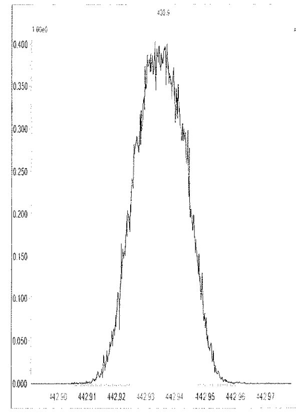
M 416.9760 R 11630



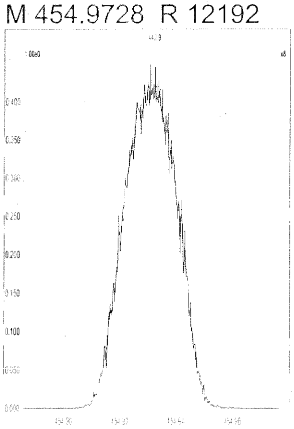
M 430.9728 R 11958



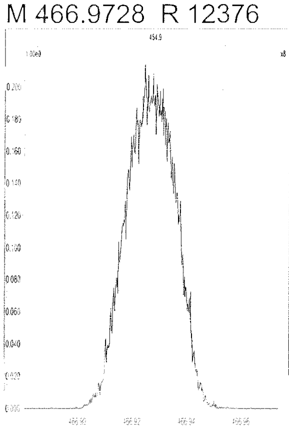
M 442.9728 R 11965



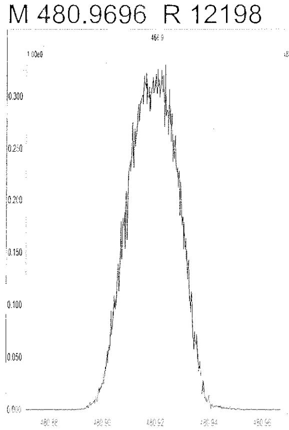
M 454.9728 R 12192



M 466.9728 R 12376



M 480.9696 R 12198

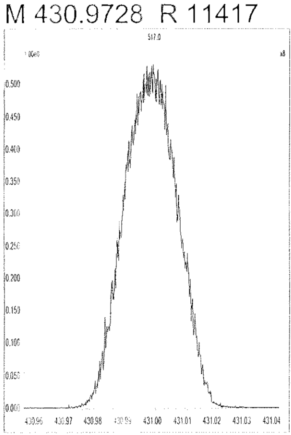


Experiment Calibration Report **MassLynx 4.1**

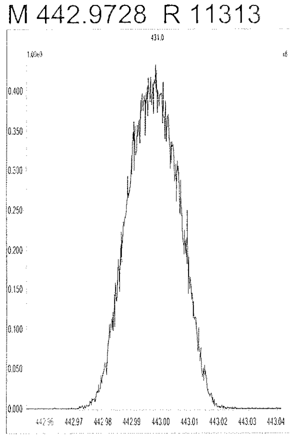
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, August 24, 2014 08:48:24 Central Daylight Time

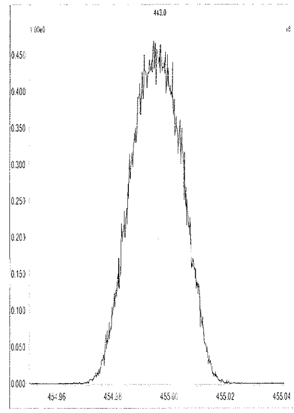
M 430.9728 R 11417



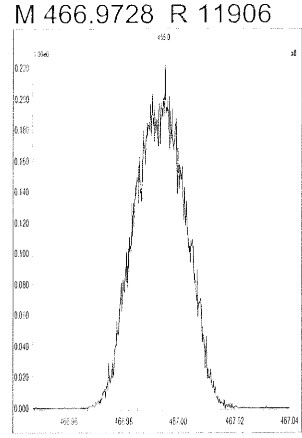
M 442.9728 R 11313



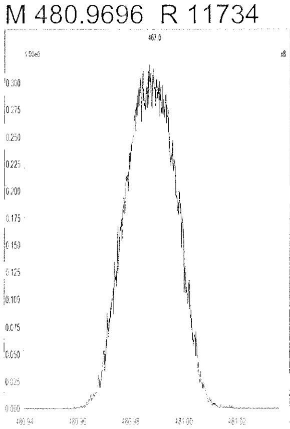
M 454.9728 R 11573



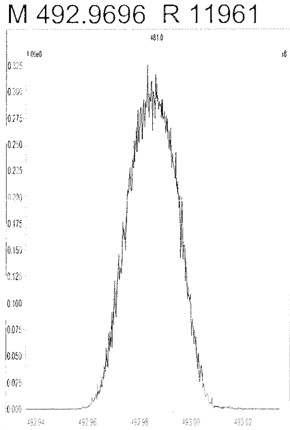
M 466.9728 R 11906



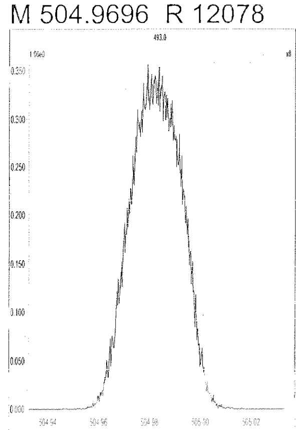
M 480.9696 R 11734



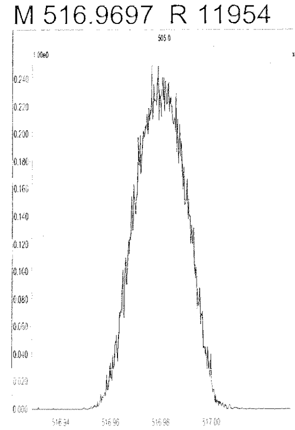
M 492.9696 R 11961



M 504.9696 R 12078



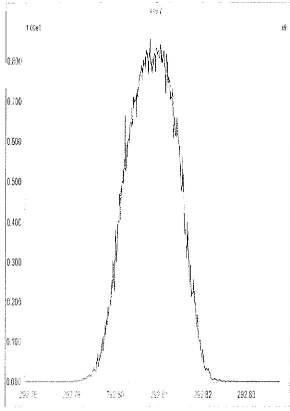
M 516.9697 R 11954



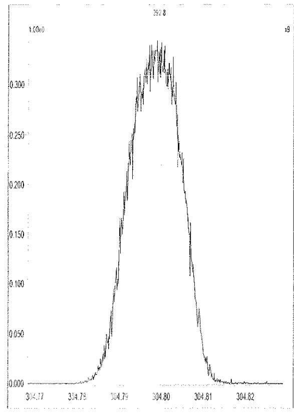
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 25, 2014 13:44:09 Central Daylight Time

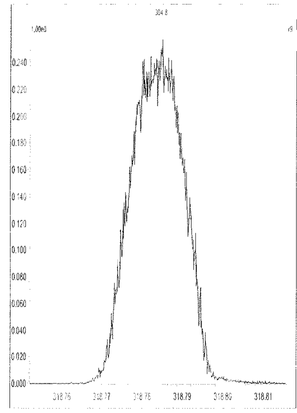
M 292.9824 R 12135



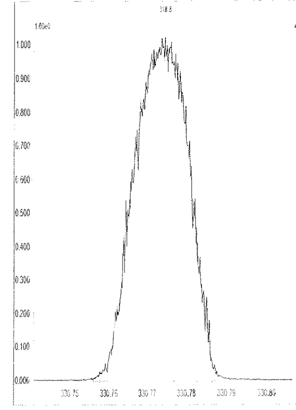
M 304.9824 R 12022



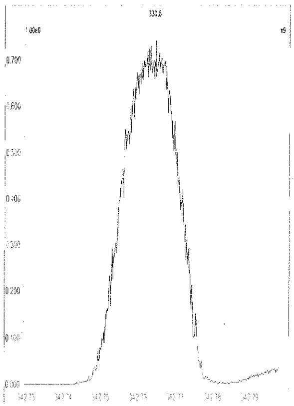
M 318.9792 R 12377



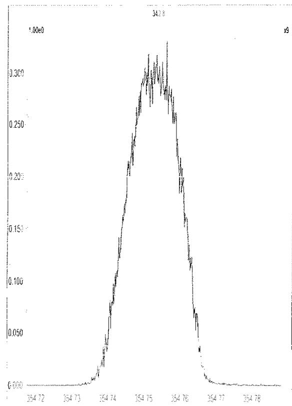
M 330.9792 R 12442



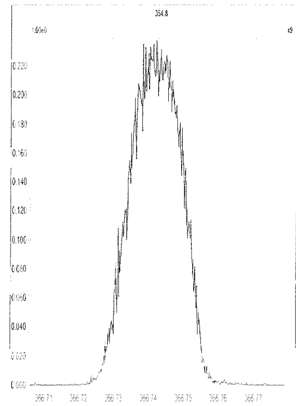
M 342.9792 R 12439



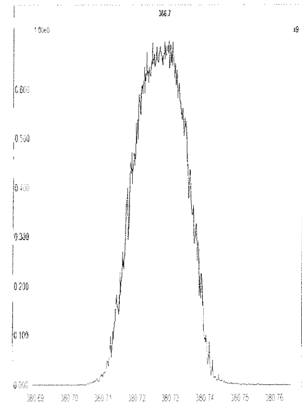
M 354.9792 R 12194



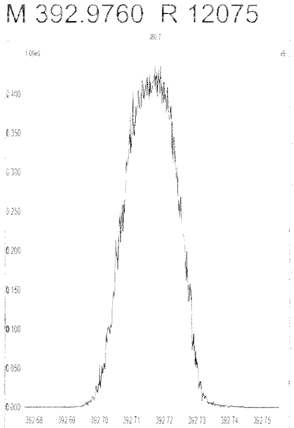
M 366.9792 R 12497



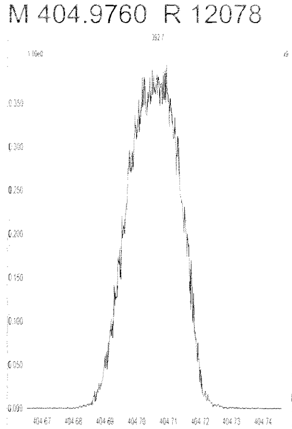
M 380.9760 R 12438



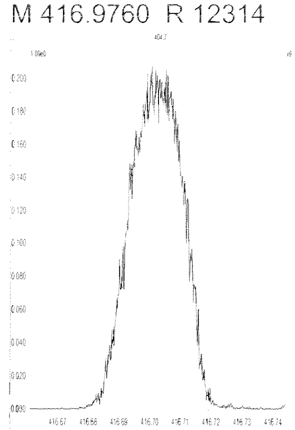
M 392.9760 R 12075



M 404.9760 R 12078



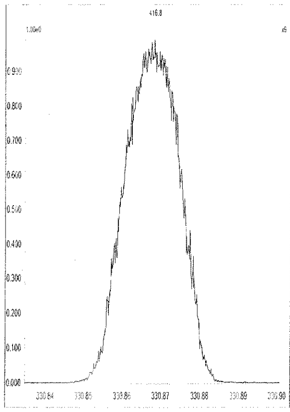
M 416.9760 R 12314



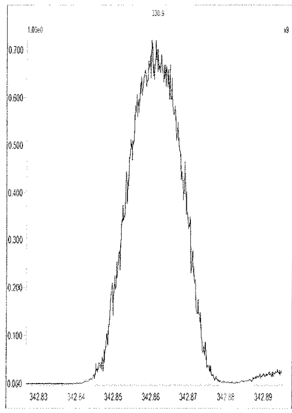
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, August 25, 2014 13:44:55 Central Daylight Time

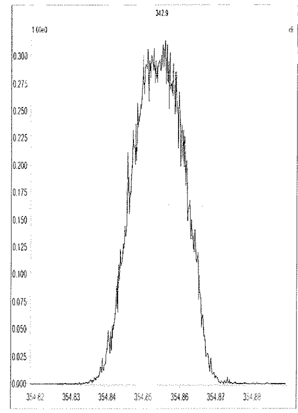
M 330.9792 R 11517



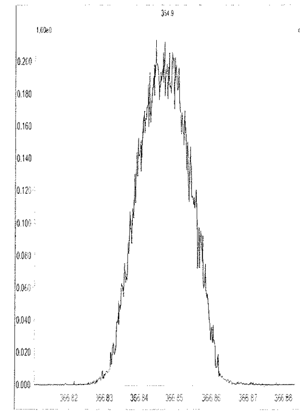
M 342.9792 R 12437



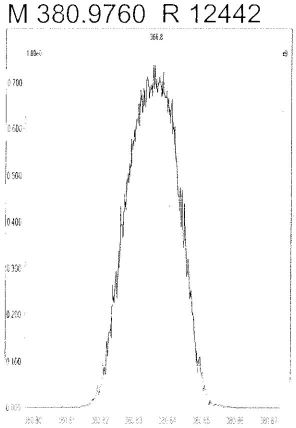
M 354.9792 R 12080



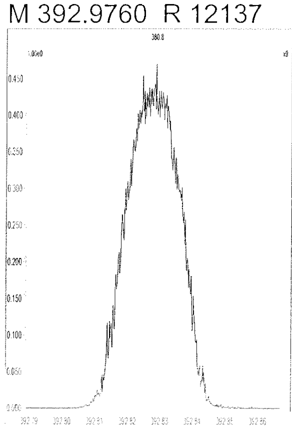
M 366.9792 R 12020



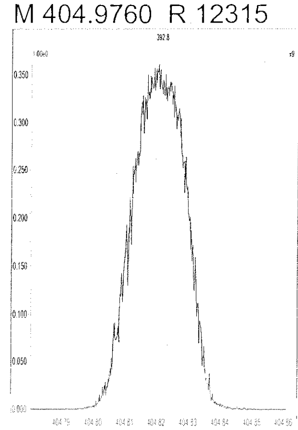
M 380.9760 R 12442



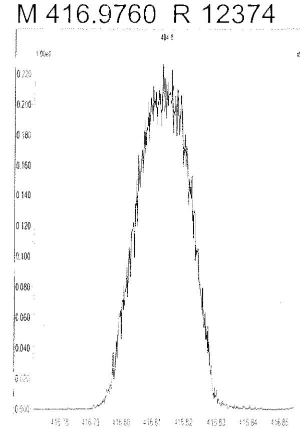
M 392.9760 R 12137



M 404.9760 R 12315



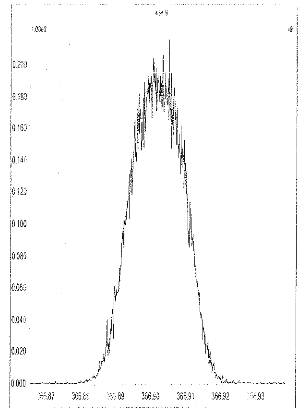
M 416.9760 R 12374



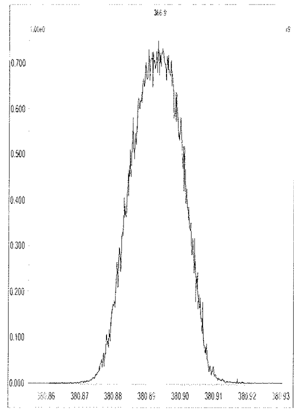
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 25, 2014 13:45:39 Central Daylight Time

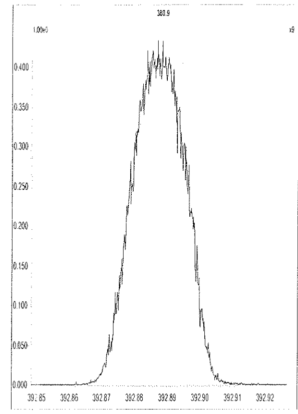
M 366.9792 R 11518



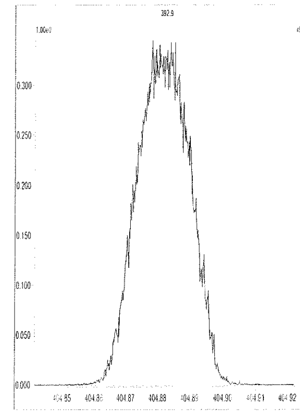
M 380.9760 R 11738



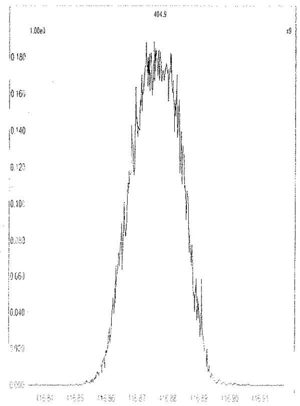
M 392.9760 R 11847



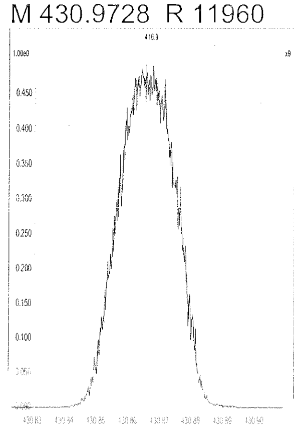
M 404.9760 R 12197



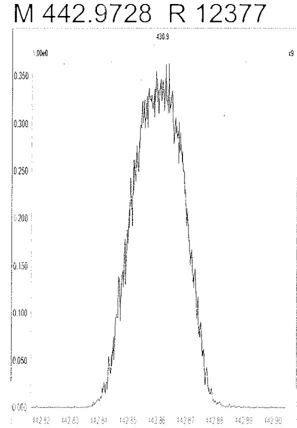
M 416.9760 R 12195



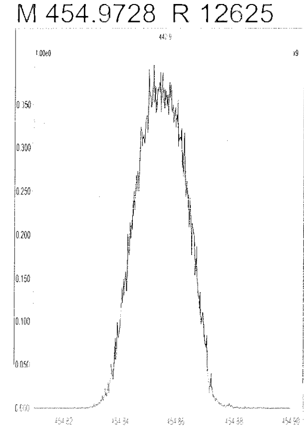
M 430.9728 R 11960



M 442.9728 R 12377



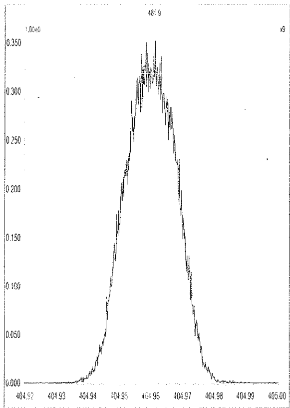
M 454.9728 R 12625



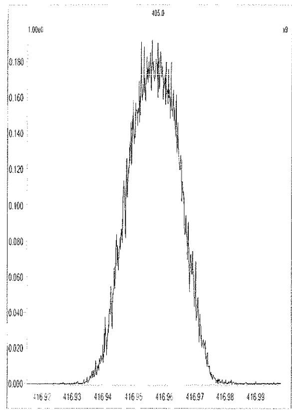
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 25, 2014 13:46:27 Central Daylight Time

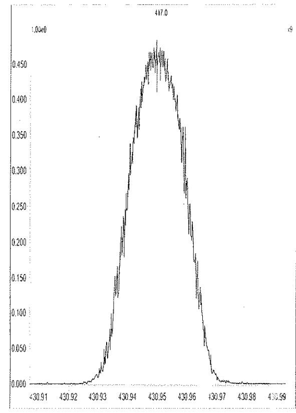
M 404.9760 R 11573



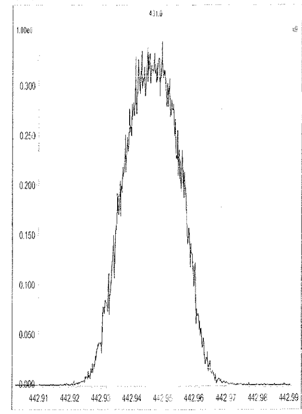
M 416.9760 R 11572



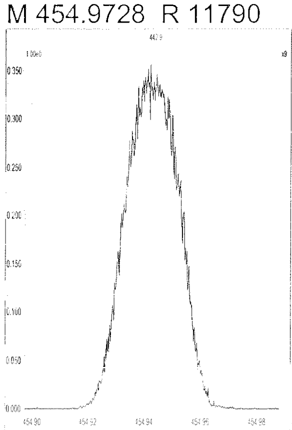
M 430.9728 R 11793



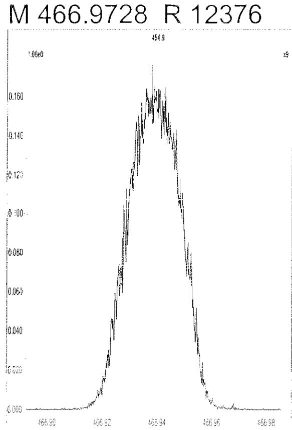
M 442.9728 R 12018



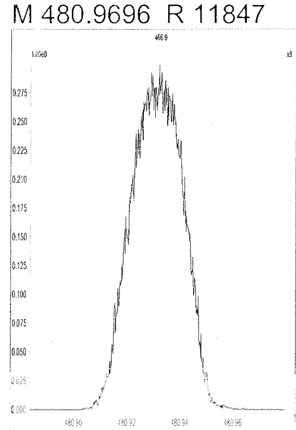
M 454.9728 R 11790



M 466.9728 R 12376



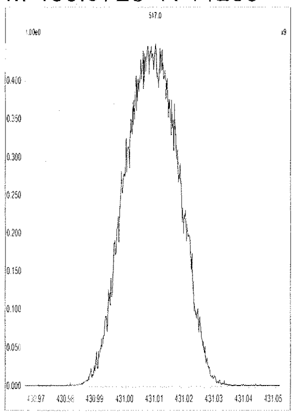
M 480.9696 R 11847



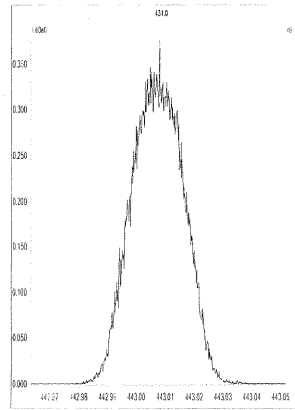
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, August 25, 2014 13:47:16 Central Daylight Time

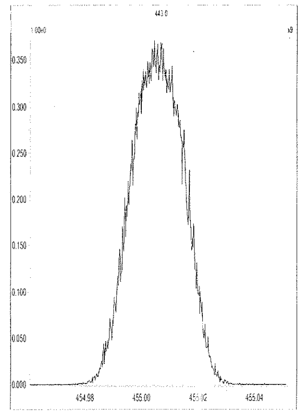
M 430.9728 R 11259



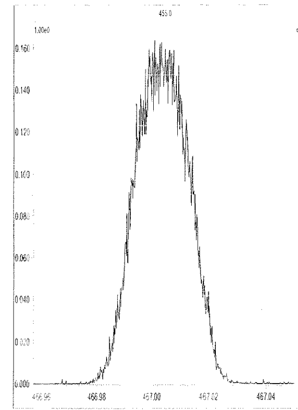
M 442.9728 R 11683



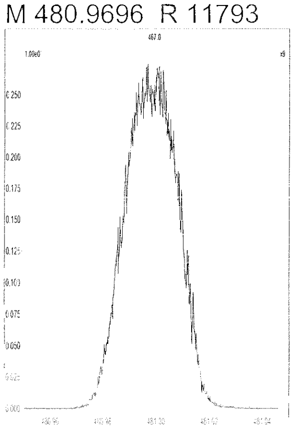
M 454.9728 R 11415



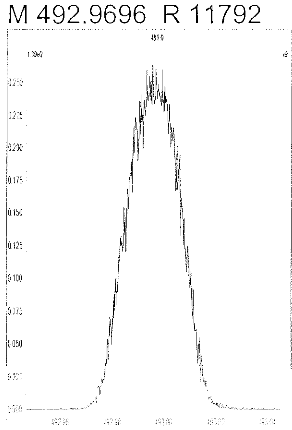
M 466.9728 R 11850



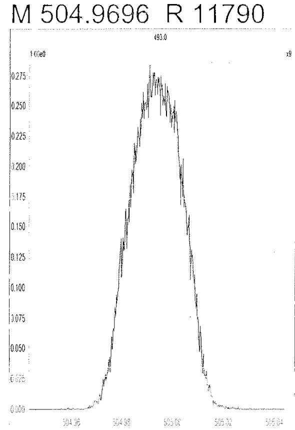
M 480.9696 R 11793



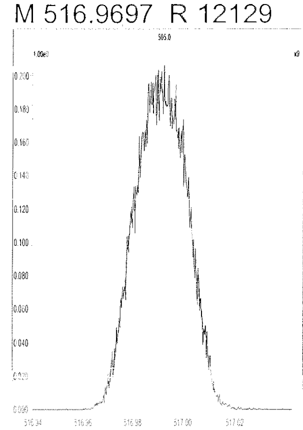
M 492.9696 R 11792



M 504.9696 R 11790



M 516.9697 R 12129



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

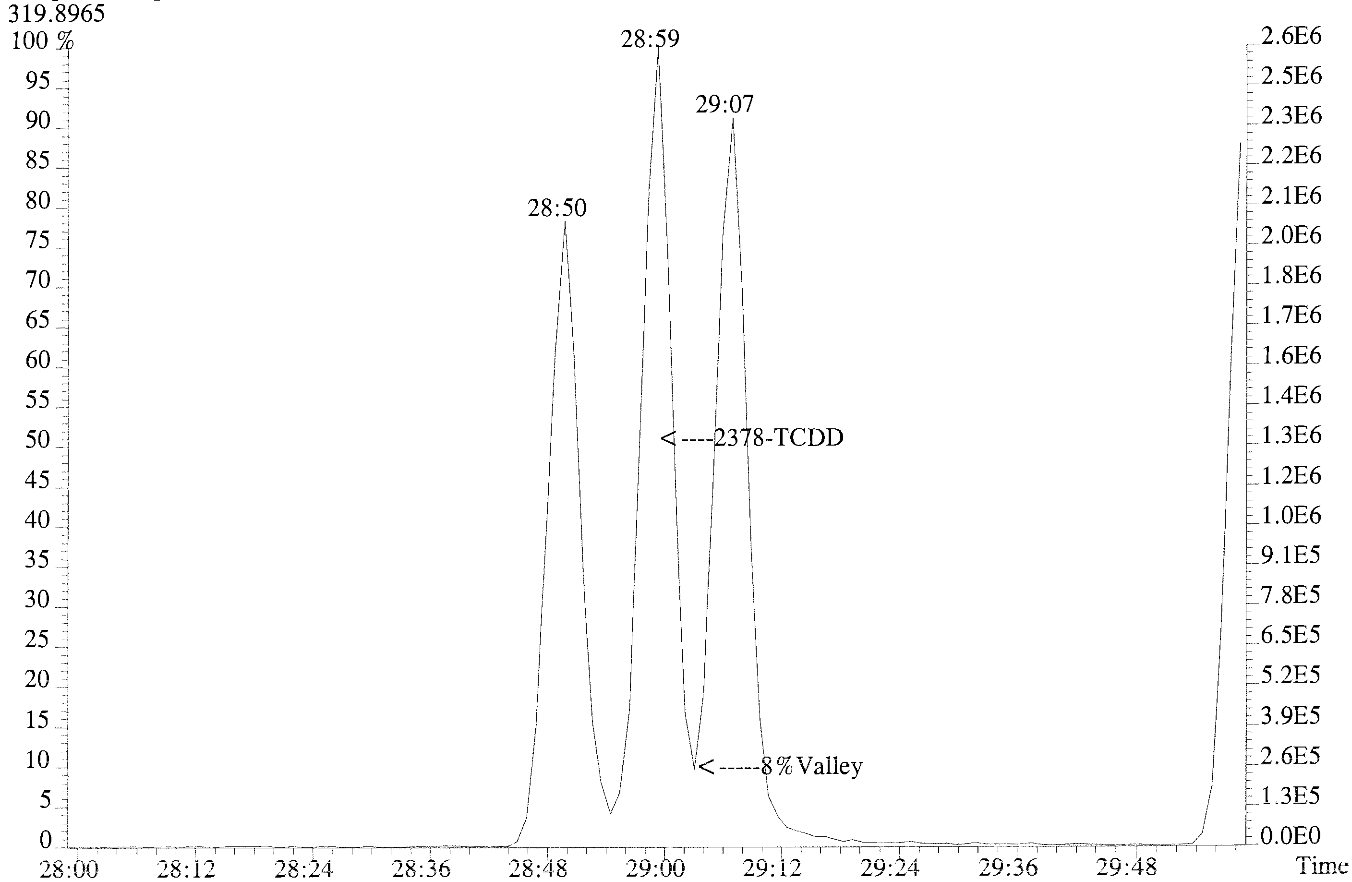
WDM

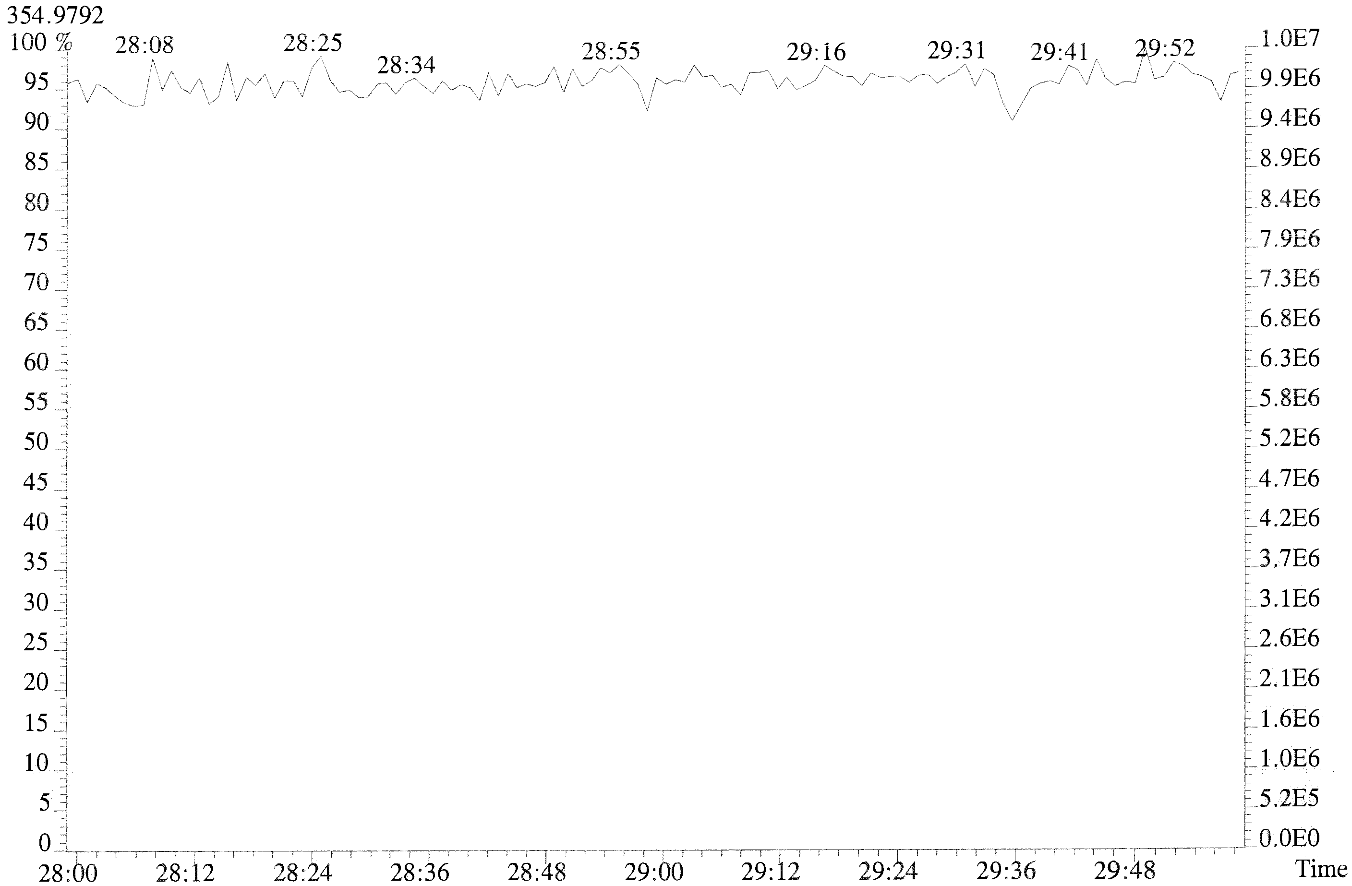
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: ______ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P230728
Date Analyzed: 24-AUG-2014
Time Analyzed: 09:48:48

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:49	30:09
TCDD	25:42	29:58
PeCDF	30:04	34:18
PeCDD	31:35	34:02
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:37	40:02
HpCDD	38:52	39:32

% Valley 2378-TCDD: 8 %

File:P230728 #1-687 Acq:24-AUG-2014 09:48:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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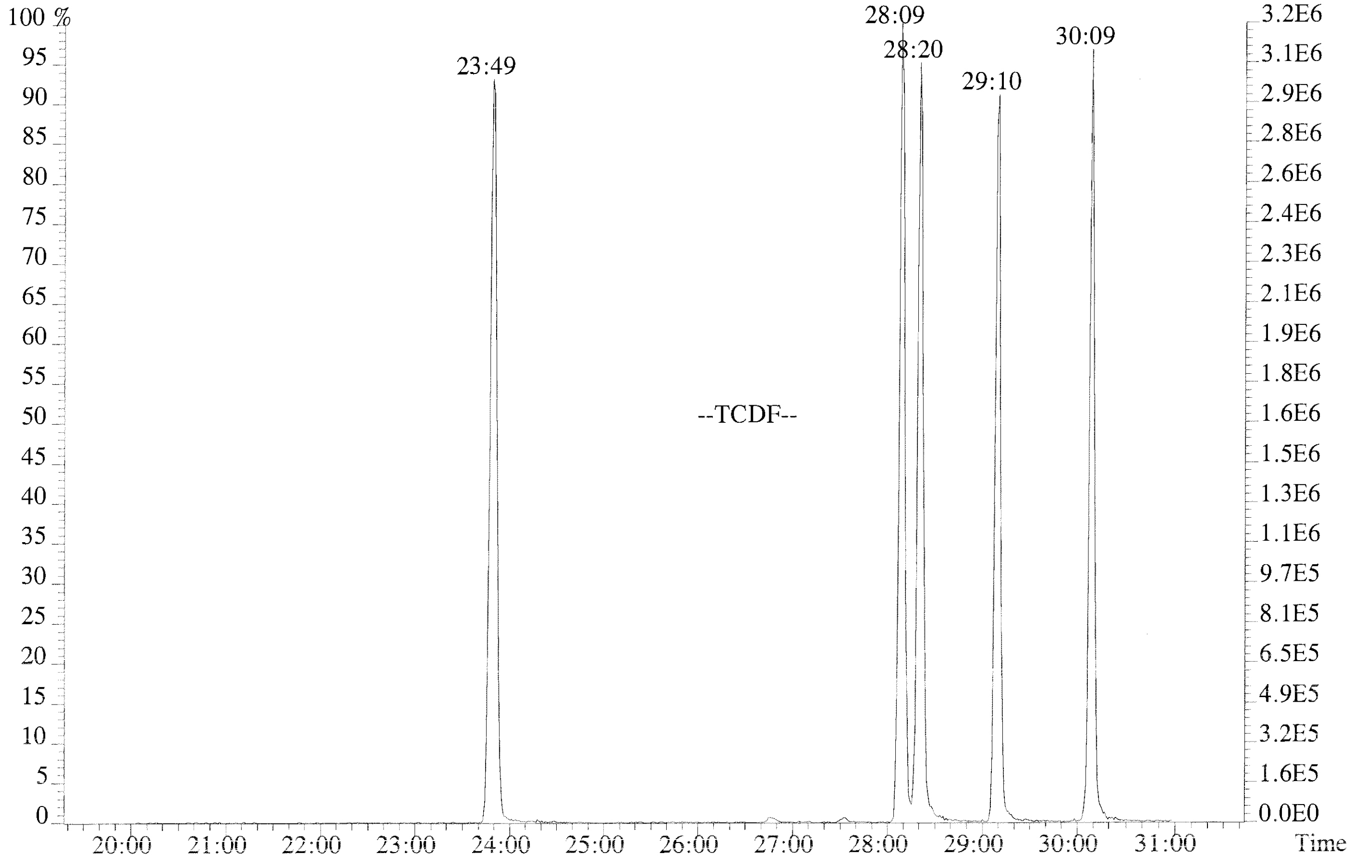
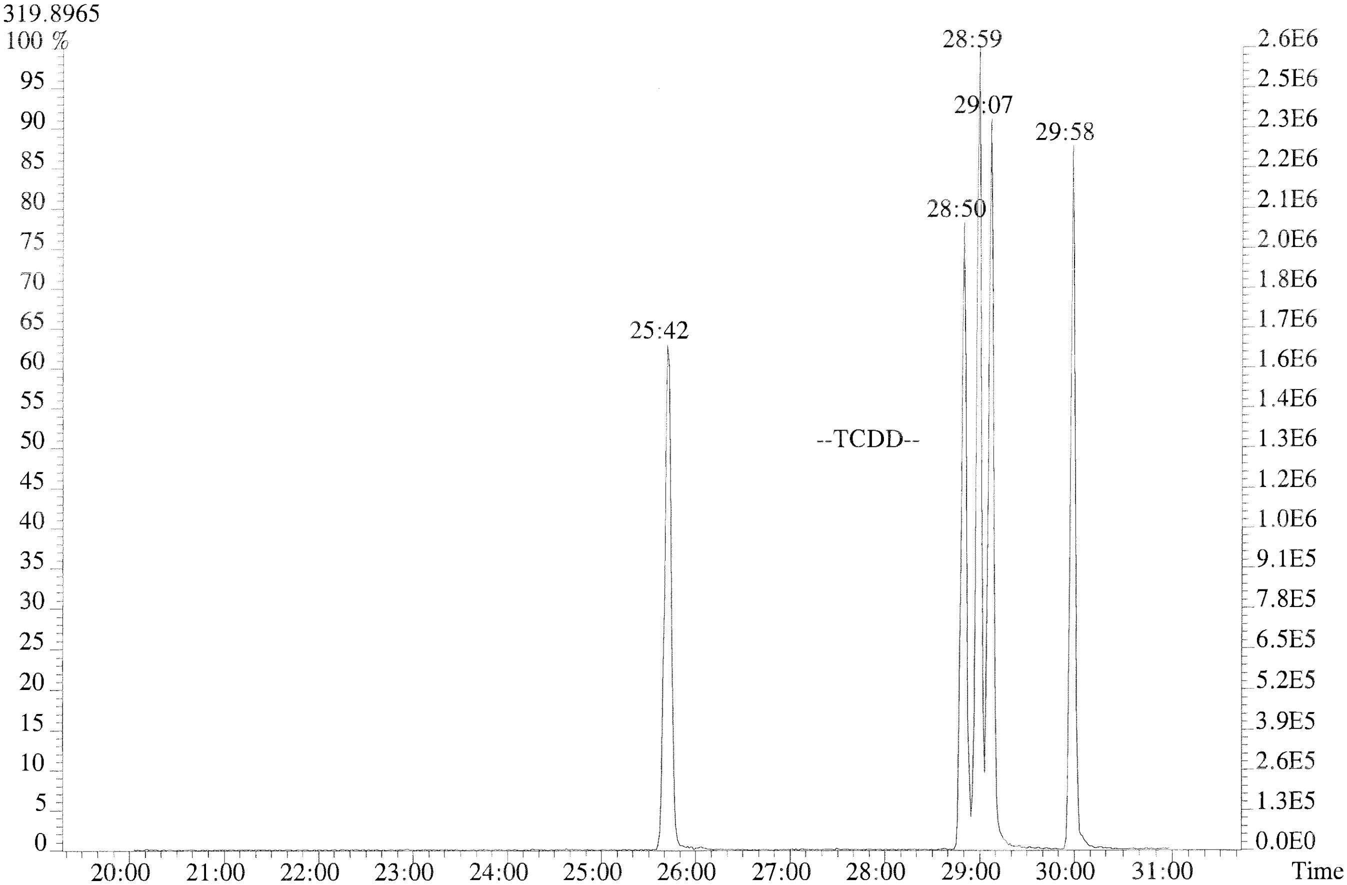
Sample#1 Exp:WINDOW DEFINE

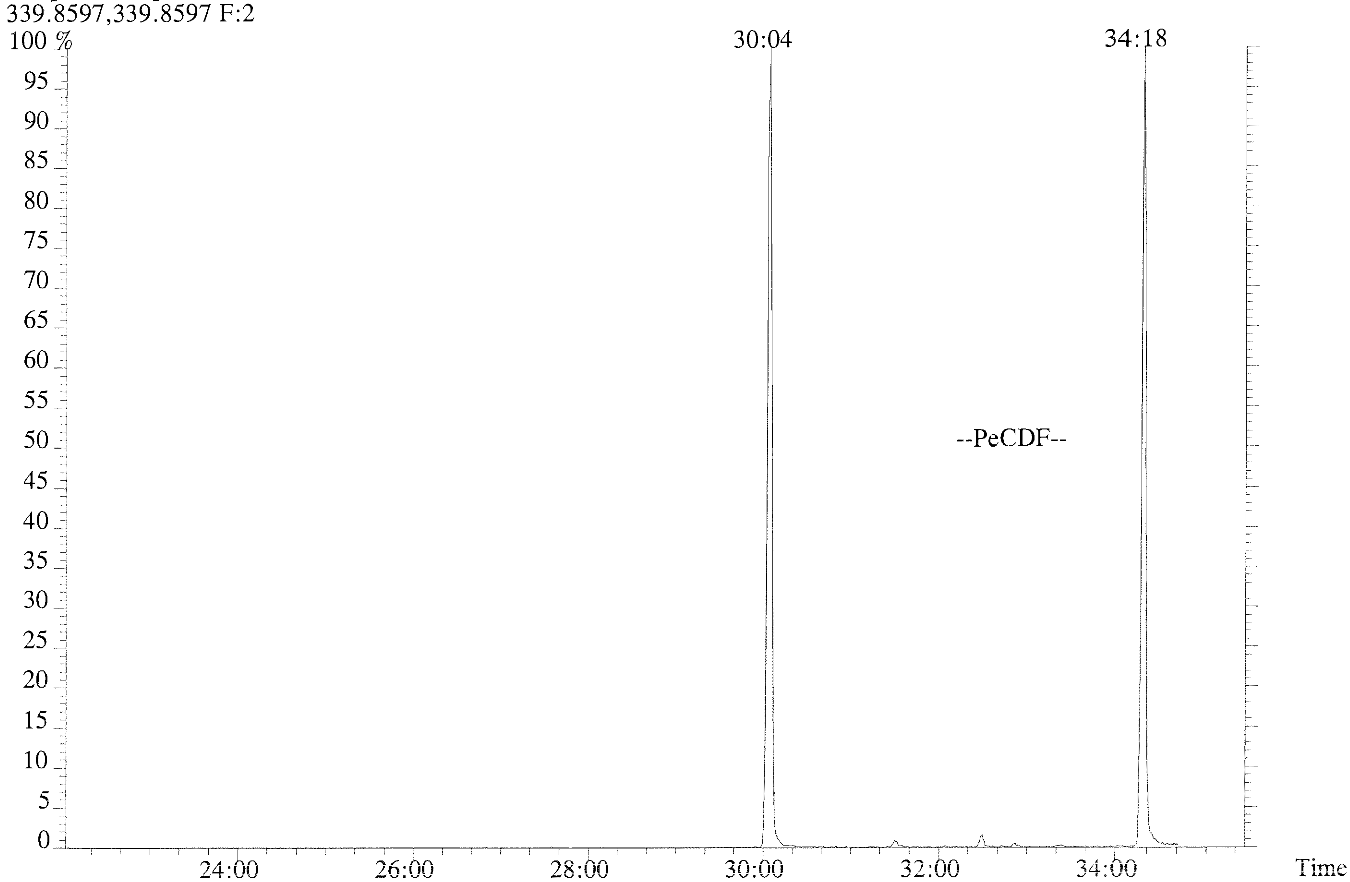
303.9016

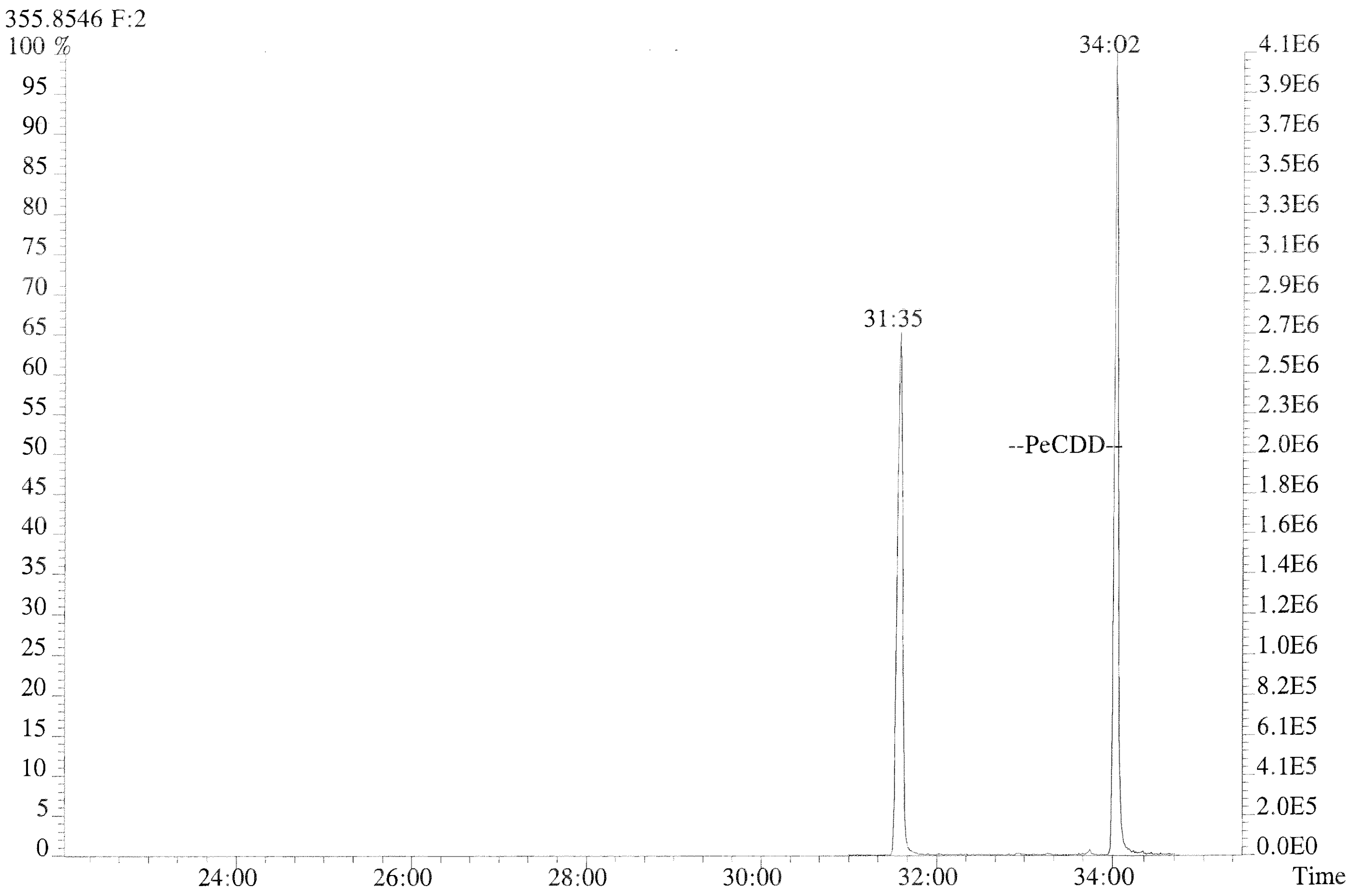


319.8965

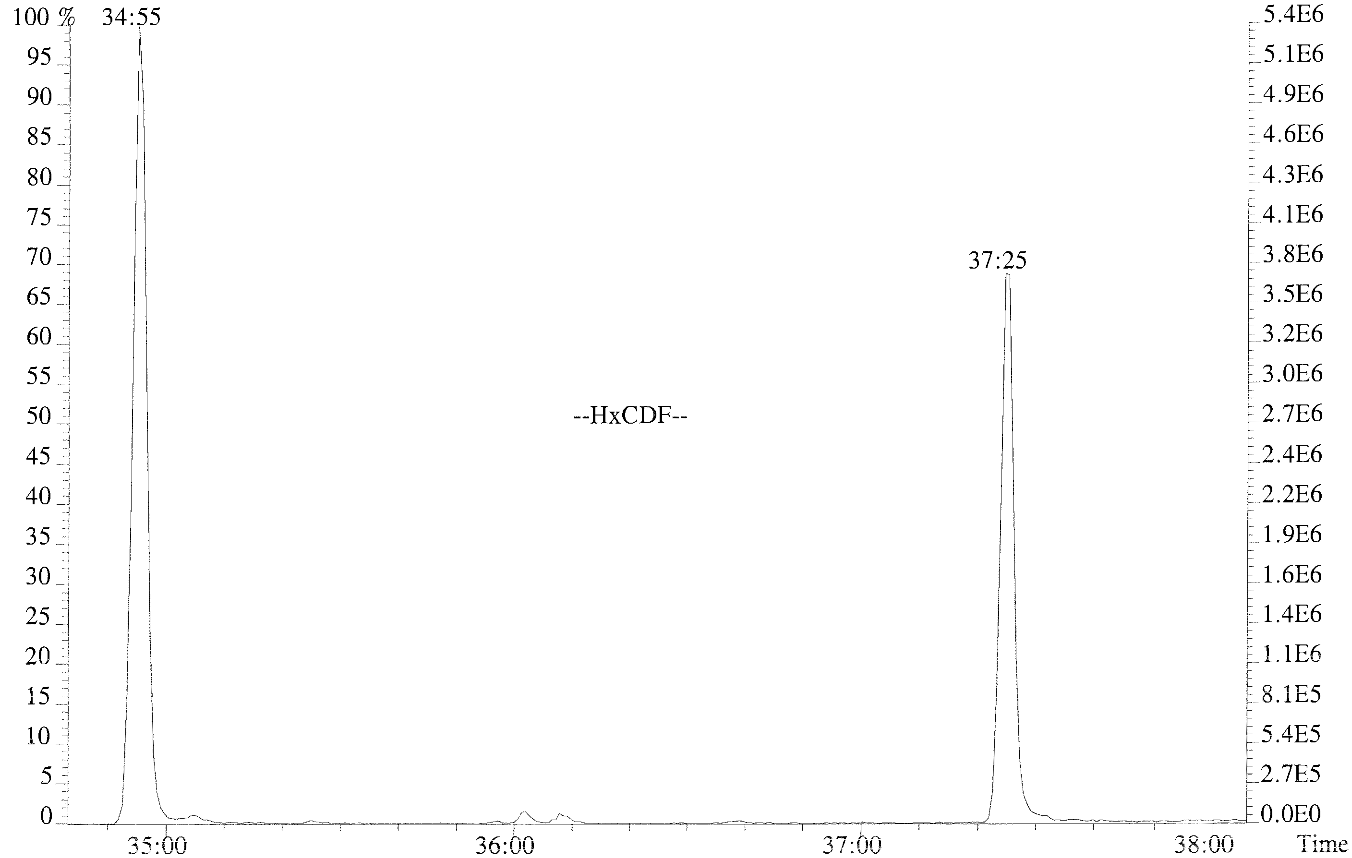


File:P230728 #1-687 Acq:24-AUG-2014 09:48:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

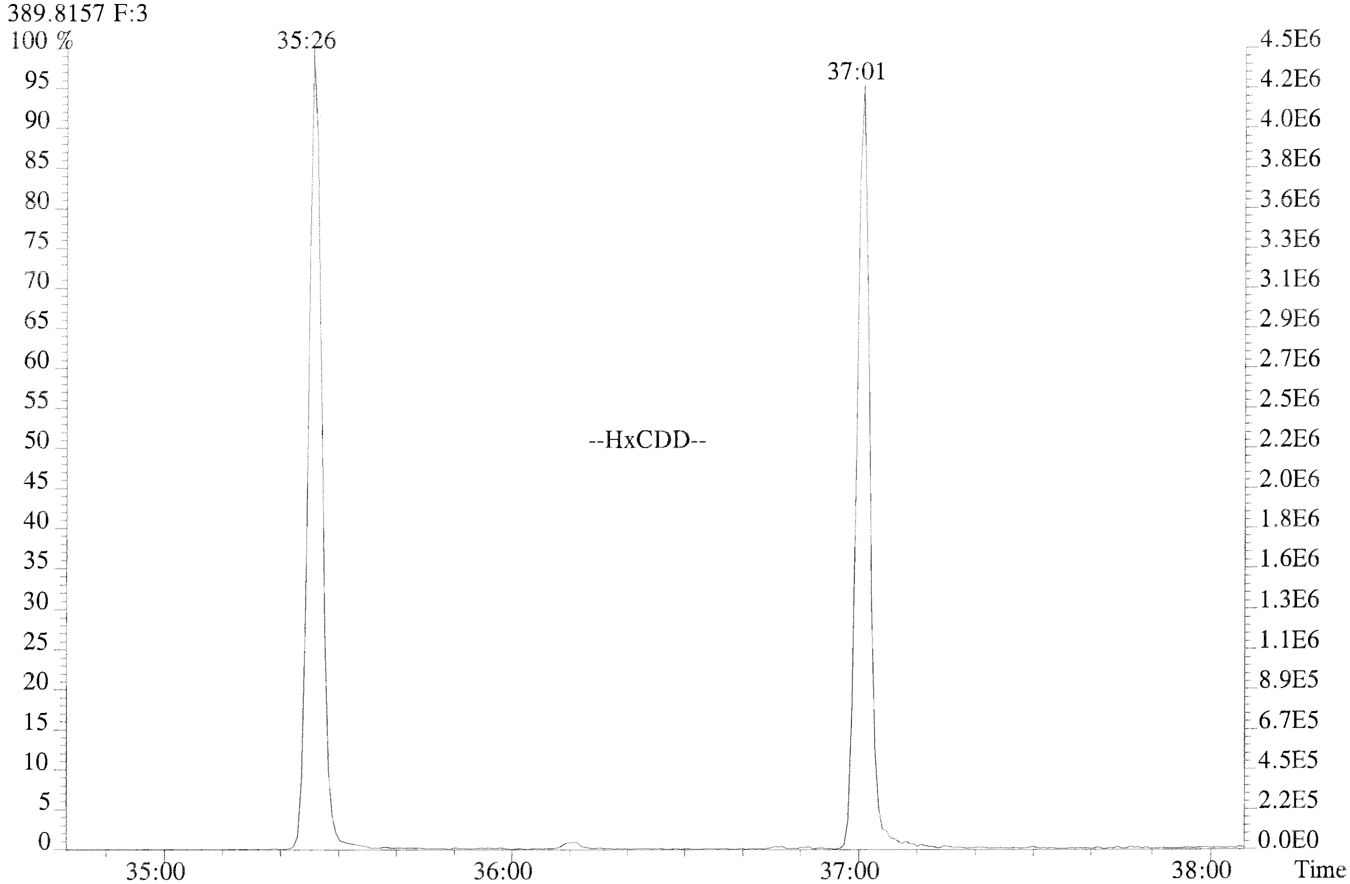




373.8208 F:3

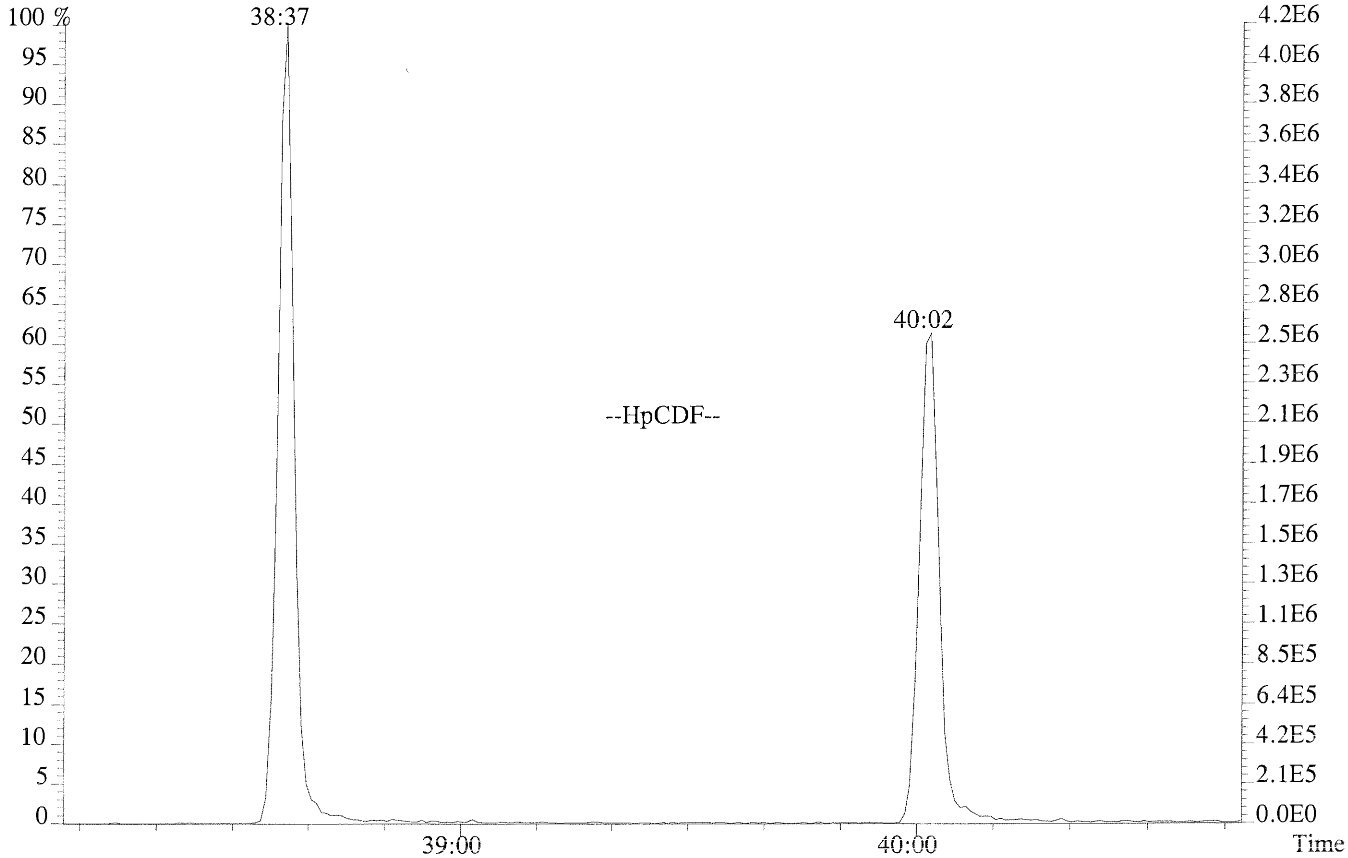


389.8157 F:3

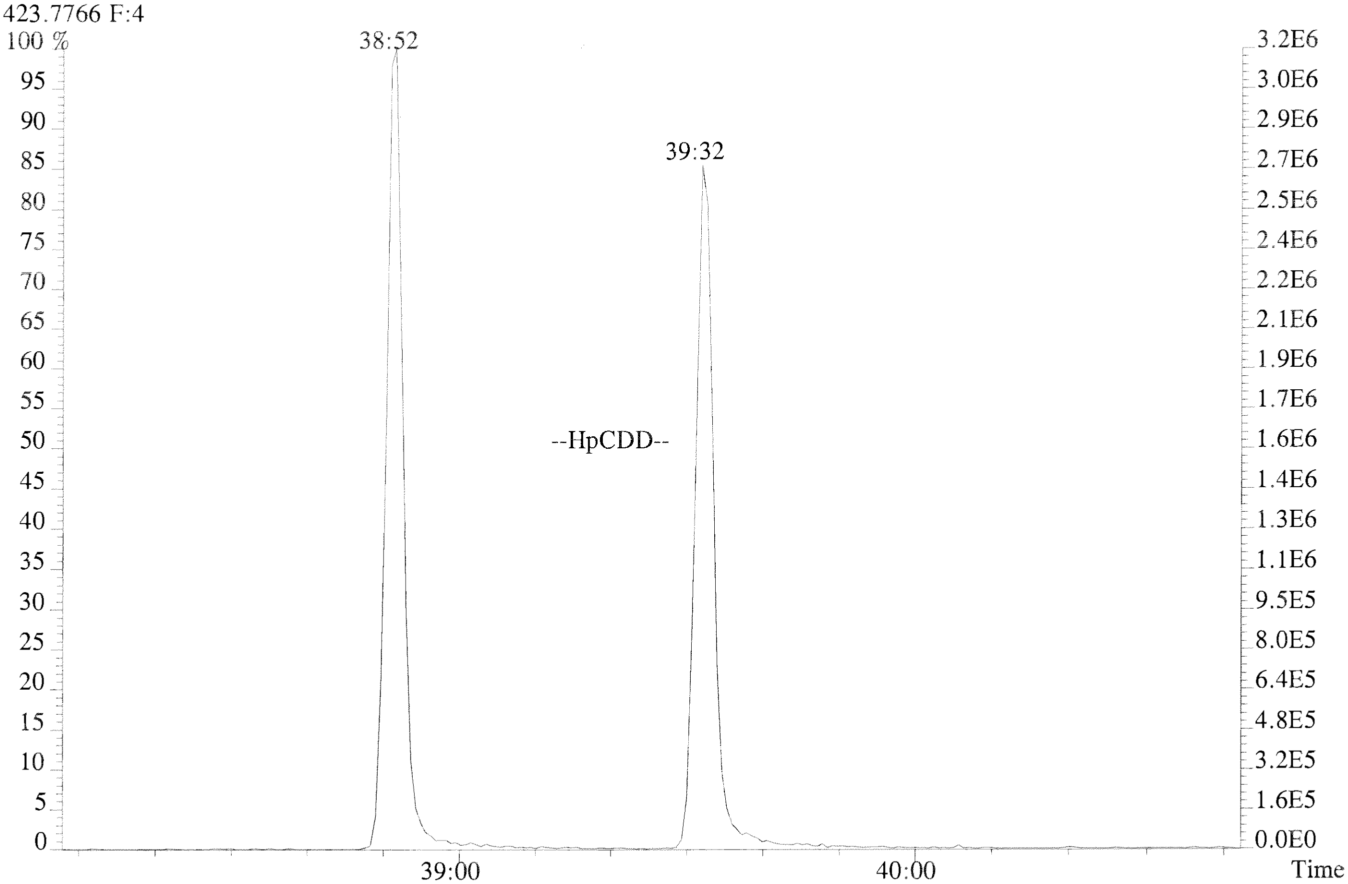


File:P230728 #1-234 Acq:24-AUG-2014 09:48:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 08/24/14 Analyte Table: 1613PP
Init. Calib. Time.: 09:48:48

	RR/RRF							MEAN	
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	0.96	1.03	0.94	0.99	1.01	0.99	0.99	3.10	+/-20%
1,2,3,7,8-PeCDF	0.95	1.02	1.02	1.03	1.04	0.95	1.00	4.03	+/-20%
2,3,4,7,8-PeCDF	0.91	1.00	0.96	0.96	0.97	1.01	0.97	3.54	+/-20%
1,2,3,4,7,8-HxCDF	1.11	1.23	1.22	1.21	1.21	1.16	1.19	3.78	+/-20%
1,2,3,6,7,8-HxCDF	1.12	1.16	1.11	1.13	1.13	1.14	1.13	1.66	+/-20%
2,3,4,6,7,8-HxCDF	1.06	1.12	1.13	1.12	1.13	1.10	1.11	2.21	+/-20%
1,2,3,7,8,9-HxCDF	1.10	1.13	1.14	1.15	1.14	1.13	1.13	1.71	+/-20%
1,2,3,4,6,7,8-HpCDF	1.32	1.34	1.37	1.36	1.38	1.32	1.35	1.98	+/-20%
1,2,3,4,7,8,9-HpCDF	1.26	1.19	1.26	1.29	1.29	1.35	1.27	4.04	+/-20%
OCDF	1.19	1.22	1.19	1.16	1.22	1.19	1.20	1.92	+/-20%
2,3,7,8-TCDD	1.10	1.07	1.05	1.03	1.07	1.05	1.06	2.15	+/-20%
1,2,3,7,8-PeCDD	0.95	1.01	0.99	0.99	1.00	1.01	0.99	1.98	+/-20%
1,2,3,4,7,8-HxCDD	1.07	1.12	1.09	1.11	1.12	1.20	1.12	3.89	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.13	1.11	1.11	1.12	0.98	1.09	5.43	+/-20%
1,2,3,7,8,9-HxCDD	1.22	1.22	1.19	1.17	1.18	1.14	1.19	2.61	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	1.05	1.06	1.07	1.08	1.05	1.05	2.84	+/-20%
OCDD	1.19	1.20	1.17	1.18	1.20	1.07	1.17	4.03	+/-20%
13C-2,3,7,8-TCDF	1.45	1.46	1.47	1.46	1.44	1.45	1.46	0.71	+/-35%
13C-1,2,3,7,8-PeCDF	1.91	1.88	1.90	1.87	1.84	1.94	1.89	1.82	+/-35%
13C-2,3,4,7,8-PeCDF	1.92	1.87	1.89	1.89	1.85	1.83	1.87	1.78	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.19	1.18	1.18	1.17	1.15	1.19	1.18	1.26	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.34	1.32	1.34	1.31	1.28	1.25	1.31	2.77	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.26	1.25	1.22	1.21	1.24	1.61	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.08	1.01	0.98	0.92	0.90	0.90	0.97	7.34	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.95	0.92	0.91	0.89	0.87	0.90	0.91	2.91	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.75	0.68	0.65	0.60	0.60	0.60	0.65	9.79	+/-35%
13C-2,3,7,8-TCDD	0.99	0.99	1.00	1.01	1.00	1.05	1.01	2.05	+/-35%
13C-1,2,3,7,8-PeCDD	1.29	1.29	1.30	1.31	1.27	1.31	1.30	1.31	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.93	0.93	0.94	0.95	0.91	0.89	0.92	2.25	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.90	0.92	0.93	0.91	0.92	1.03	0.93	5.09	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.89	0.87	0.84	0.83	0.81	0.84	0.85	3.15	+/-35%
13C-OCDD	0.60	0.58	0.57	0.55	0.54	0.64	0.58	6.46	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	1.14	1.13	1.04	1.08	1.08	1.12	1.10	3.62	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 08/24/14 Analyte Table: 1613PP
Init. Calib. Time.: 09:48:48

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO						FLAG	ION RATIO QC lIMITS
		CS0.5	CS1	CS2	CS3	CS4	CS5		
2,3,7,8-TCDF	304/306	0.73	0.81	0.78	0.80	0.76	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.59	1.50	1.55	1.56	1.55	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.74	1.52	1.52	1.52	1.54	1.53		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.17	1.17	1.25	1.25	1.25	1.24		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.21	1.24	1.23	1.24	1.24	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.24	1.21	1.23	1.26	1.24	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.18	1.27	1.25	1.26	1.22	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.08	1.09	1.02	1.04	1.03	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.08	1.11	1.05	1.05	1.04	1.02		0.88-1.20
OCDF	442/444	0.90	0.92	0.92	0.91	0.90	0.90		0.76-1.02
2,3,7,8-TCDD	320/322	0.84	0.82	0.79	0.80	0.77	0.79		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.61	1.62	1.58	1.57	1.59	1.59		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.11	1.29	1.28	1.29	1.26	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.29	1.19	1.24	1.27	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.26	1.20	1.24	1.27	1.25	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	1.07	1.06	1.06	1.05	1.04	1.04		0.88-1.20
OCDD	458/460	0.90	0.84	0.89	0.89	0.89	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.81	0.80	0.80	0.80	0.80	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.59	1.58	1.59	1.57	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.51	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.51	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.52	0.52	0.52	0.51	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.51	0.53	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.43	0.44	0.43	0.44	0.44	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.43	0.45	0.44	0.44	0.44	0.42		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.79	0.78	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.59	1.57	1.59	1.59	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.28	1.26	1.26	1.28	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.24	1.28	1.26	1.27	1.27	1.28		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.07	1.06	1.07	1.07	1.07	1.07		0.88-1.20
13C-OCDD	470/472	0.91	0.90	0.91	0.90	0.91	0.91		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.80	0.80	0.79	0.80	0.80	0.80		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.26	1.25	1.25	1.27	1.28		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CS0.5

Run #1 Filename P230730 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 11:23:08
Processed: 25-AUG-14 11:37:31 LAB. ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	1.039e+02	1.419e+02	0.73	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	9.833e+02	6.190e+02	1.59	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	9.821e+02	5.635e+02	1.74	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	8.097e+02	6.942e+02	1.17	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	9.272e+02	7.669e+02	1.21	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	8.394e+02	6.771e+02	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	7.262e+02	6.132e+02	1.18	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	7.360e+02	6.815e+02	1.08	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	5.573e+02	5.159e+02	1.08	yes	no	1.000
10	Unk	OCDF	42:31	7.669e+02	8.511e+02	0.90	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	8.776e+01	1.045e+02	0.84	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	6.710e+02	4.160e+02	1.61	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	5.996e+02	5.410e+02	1.11	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:50	6.073e+02	4.725e+02	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	7.097e+02	5.626e+02	1.26	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	5.213e+02	4.865e+02	1.07	yes	no	1.000
17	Unk	OCDD	42:18	7.660e+02	8.517e+02	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:18	4.560e+04	5.653e+04	0.81	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	8.244e+04	5.209e+04	1.58	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	8.255e+04	5.274e+04	1.57	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	3.691e+04	7.128e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	4.173e+04	7.963e+04	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	3.933e+04	7.476e+04	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	3.340e+04	6.427e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.610e+04	6.007e+04	0.43	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.062e+04	4.763e+04	0.43	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	3.098e+04	3.900e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:38	5.583e+04	3.524e+04	1.58	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	4.749e+04	3.744e+04	1.27	yes	yes	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	4.511e+04	3.650e+04	1.24	yes	yes	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	4.184e+04	3.900e+04	1.07	yes	no	1.066
32	IS	13C-OCDD	42:18	5.177e+04	5.713e+04	0.91	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	3.128e+04	3.917e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	5.065e+04	4.019e+04	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	2.014e+02				no	1.020

ALS ENVIRONMENTAL
10450 Stancliff, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CS0.5

Run #1 Filename P230730 Samp: 1 Inj: 1 Acquired: 24-AUG-14 11:23:08
Processed: 25-AUG-14 11:37:31 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.07e+04	5.40e+02	3.8e+01	2.91e+04	1.89e+03	1.5e+01
2	1,2,3,7,8-PeCDF	1.80e+05	4.88e+02	3.7e+02	1.14e+05	1.18e+03	9.7e+01
3	2,3,4,7,8-PeCDF	2.06e+05	4.88e+02	4.2e+02	1.12e+05	1.18e+03	9.5e+01
4	1,2,3,4,7,8-HxCDF	1.77e+05	6.96e+02	2.5e+02	1.56e+05	2.20e+02	7.1e+02
5	1,2,3,6,7,8-HxCDF	1.95e+05	6.96e+02	2.8e+02	1.69e+05	2.20e+02	7.7e+02
6	2,3,4,6,7,8-HxCDF	1.88e+05	6.96e+02	2.7e+02	1.54e+05	2.20e+02	7.0e+02
7	1,2,3,7,8,9-HxCDF	1.62e+05	6.96e+02	2.3e+02	1.40e+05	2.20e+02	6.4e+02
8	1,2,3,4,6,7,8-HpCDF	1.65e+05	3.32e+02	5.0e+02	1.50e+05	3.60e+02	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.17e+05	3.32e+02	3.5e+02	1.03e+05	3.60e+02	2.9e+02
10	OCDF	1.31e+05	3.36e+02	3.9e+02	1.50e+05	1.30e+03	1.2e+02
11	2,3,7,8-TCDD	1.60e+04	7.52e+02	2.1e+01	2.06e+04	6.88e+02	3.0e+01
12	1,2,3,7,8-PeCDD	1.23e+05	1.14e+03	1.1e+02	8.19e+04	6.00e+01	1.4e+03
13	1,2,3,4,7,8-HxCDD	1.33e+05	6.40e+01	2.1e+03	1.19e+05	3.96e+02	3.0e+02
14	1,2,3,6,7,8-HxCDD	1.39e+05	6.40e+01	2.2e+03	1.01e+05	3.96e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	1.52e+05	6.40e+01	2.4e+03	1.16e+05	3.96e+02	2.9e+02
16	1,2,3,4,6,7,8-HpCDD	1.11e+05	4.96e+02	2.2e+02	1.05e+05	5.20e+01	2.0e+03
17	OCDD	1.35e+05	1.24e+02	1.1e+03	1.52e+05	3.36e+02	4.5e+02
18	13C-2,3,7,8-TCDF	9.23e+06	1.92e+03	4.8e+03	1.15e+07	1.36e+03	8.4e+03
19	13C-1,2,3,7,8-PeCDF	1.53e+07	1.16e+02	1.3e+05	9.67e+06	8.84e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	1.63e+07	1.16e+02	1.4e+05	1.03e+07	8.84e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	8.21e+06	6.28e+02	1.3e+04	1.58e+07	1.13e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	9.05e+06	6.28e+02	1.4e+04	1.71e+07	1.13e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	8.77e+06	6.28e+02	1.4e+04	1.68e+07	1.13e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	7.08e+06	6.28e+02	1.1e+04	1.37e+07	1.13e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.89e+06	2.92e+02	2.0e+04	1.36e+07	4.56e+03	3.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.28e+06	2.92e+02	1.5e+04	9.66e+06	4.56e+03	2.1e+03
27	13C-2,3,7,8-TCDD	6.61e+06	5.31e+03	1.2e+03	8.28e+06	1.95e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.09e+07	9.96e+02	1.1e+04	6.95e+06	3.84e+02	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	1.06e+07	1.20e+03	8.9e+03	8.18e+06	6.88e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	9.91e+06	1.20e+03	8.3e+03	8.11e+06	6.88e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	8.67e+06	1.50e+03	5.8e+03	8.19e+06	6.72e+02	1.2e+04
32	13C-OCDD	9.20e+06	3.36e+02	2.7e+04	1.01e+07	4.40e+02	2.3e+04
33	13C-1,2,3,4-TCDD	6.50e+06	5.31e+03	1.2e+03	8.16e+06	1.95e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.12e+07	1.20e+03	9.4e+03	8.80e+06	6.88e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	4.13e+04	9.28e+02	4.5e+01			

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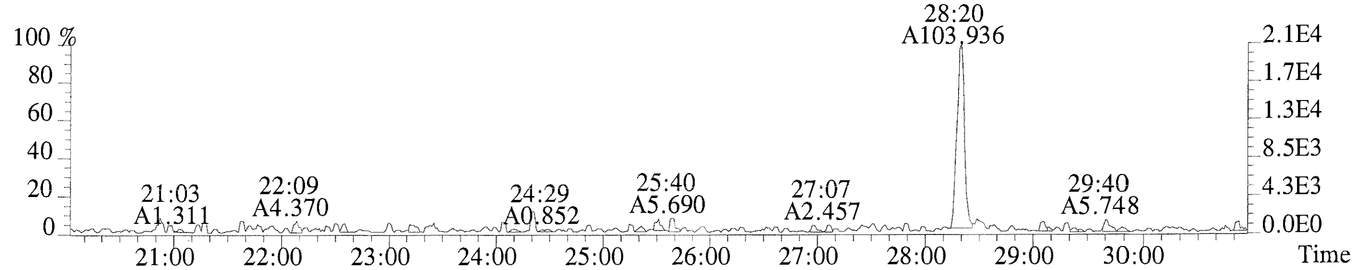
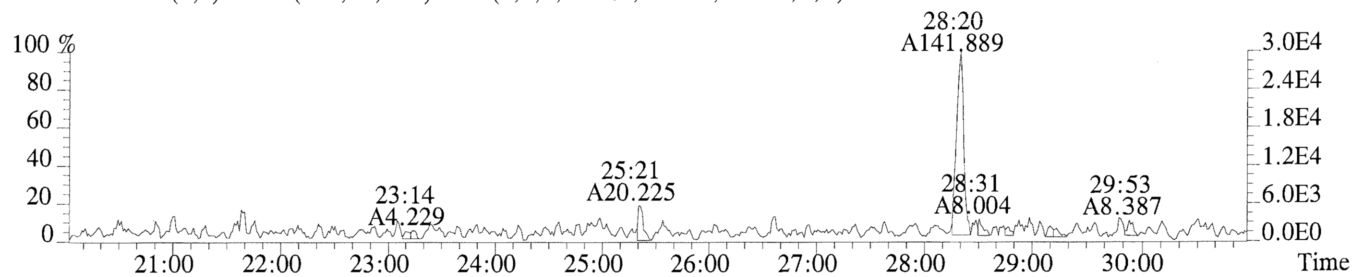
File:P230730 #1-687 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5

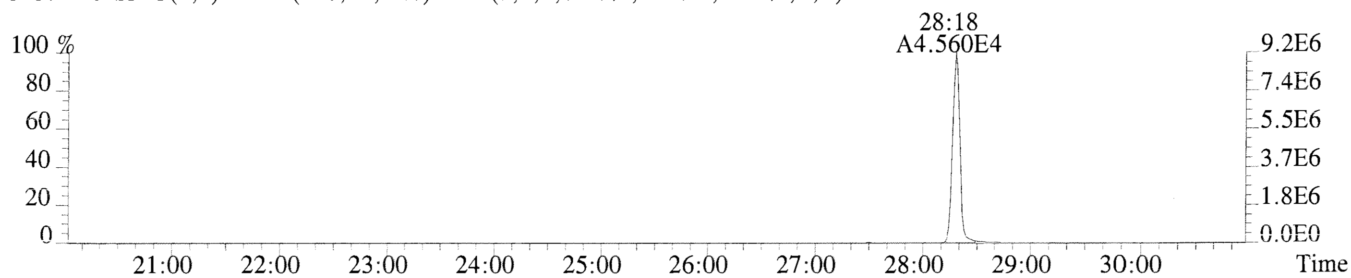
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



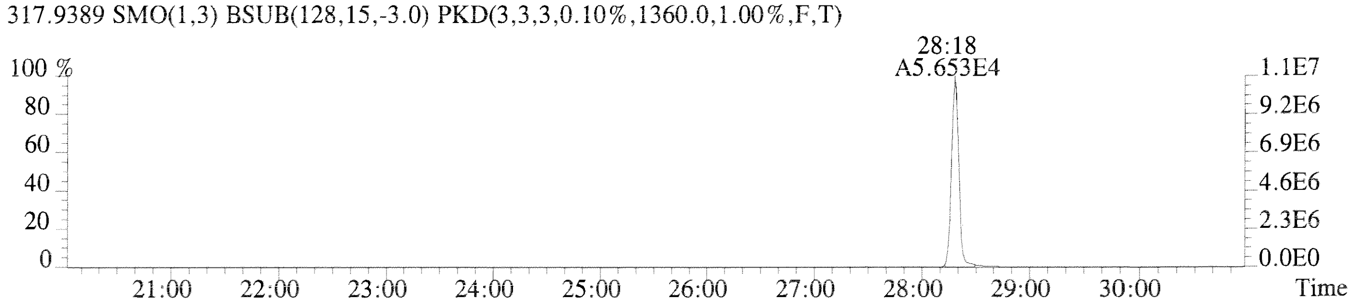
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



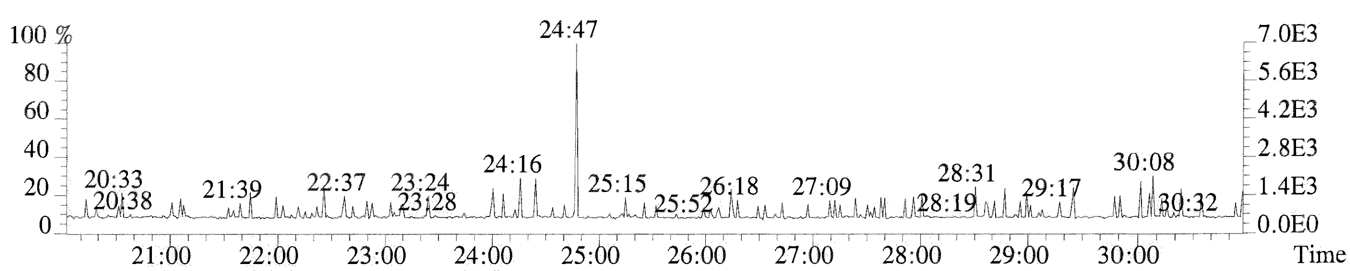
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



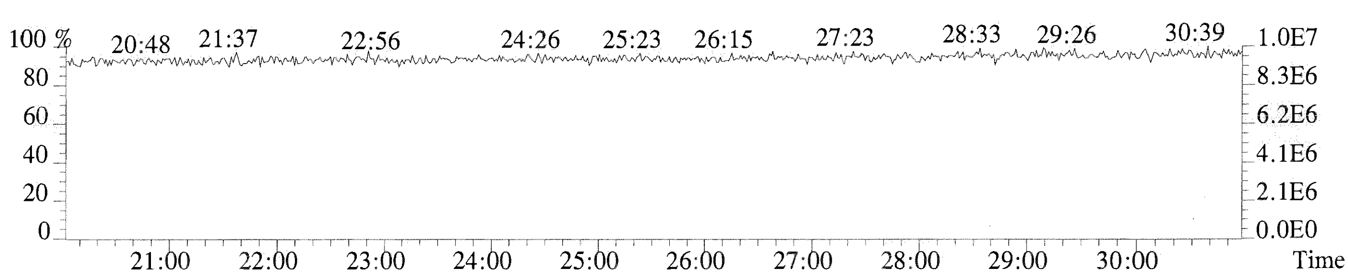
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



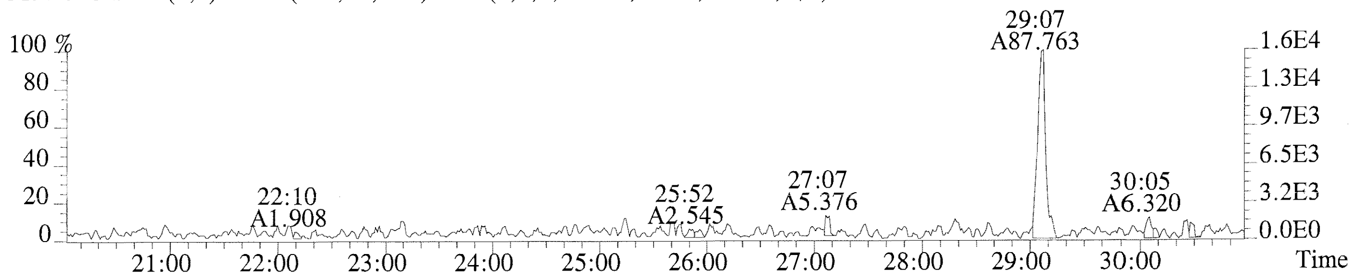
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



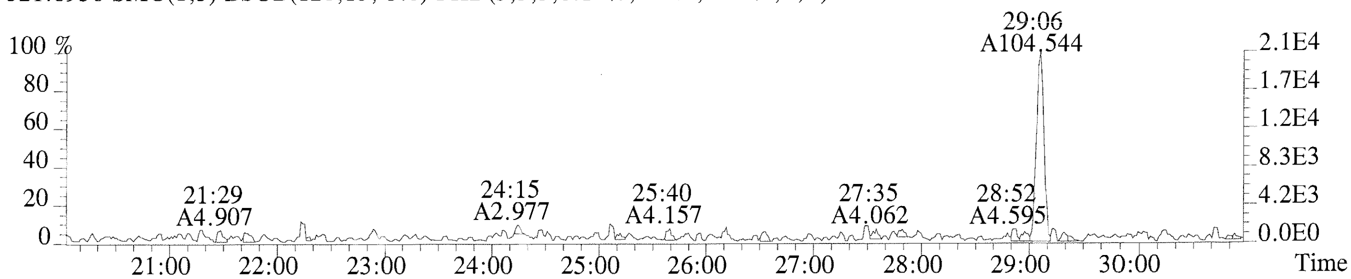
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



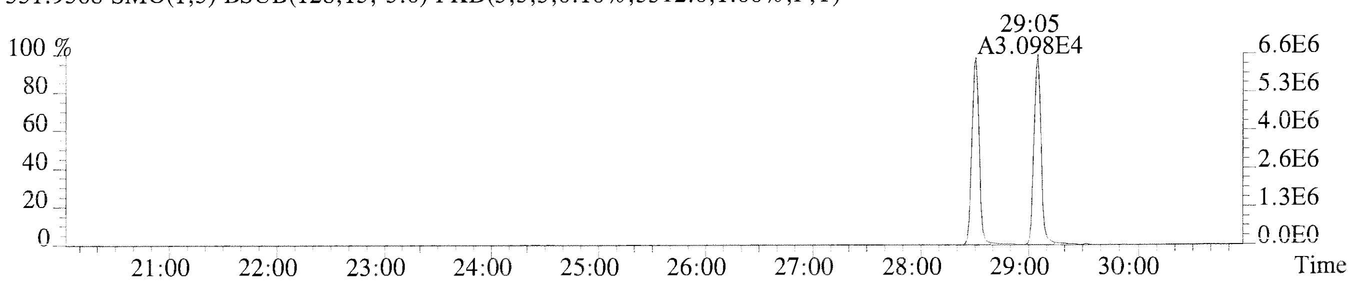
File:P230730 #1-687 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



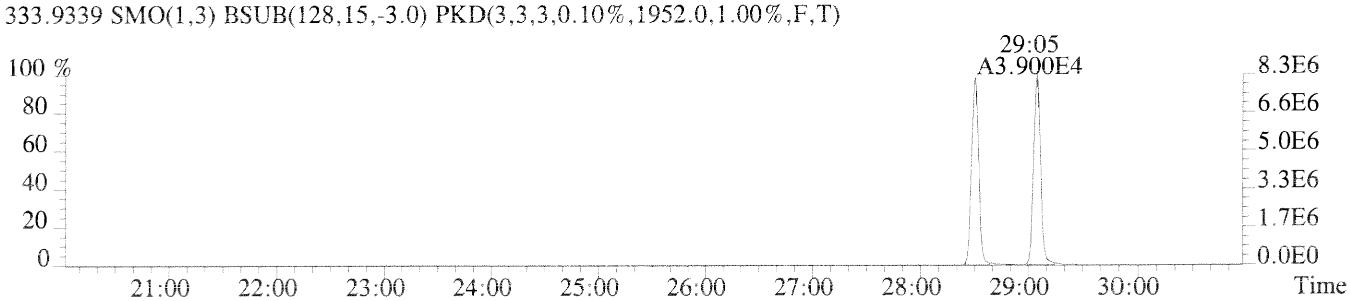
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



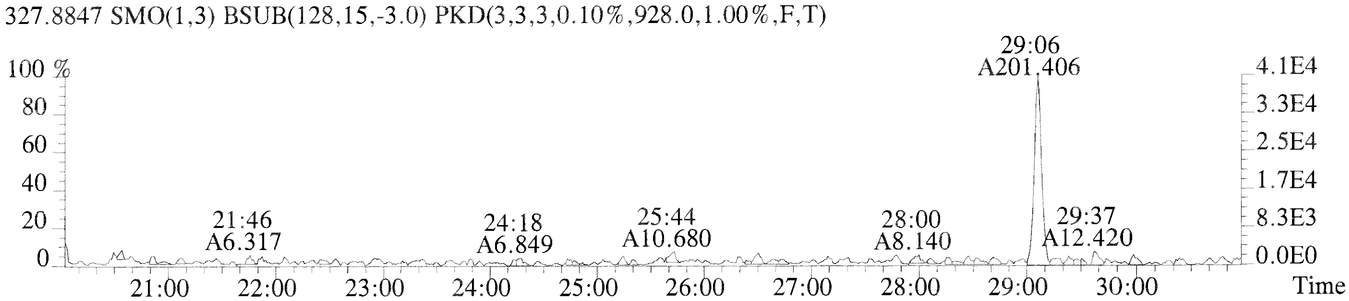
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5312.0,1.00%,F,T)



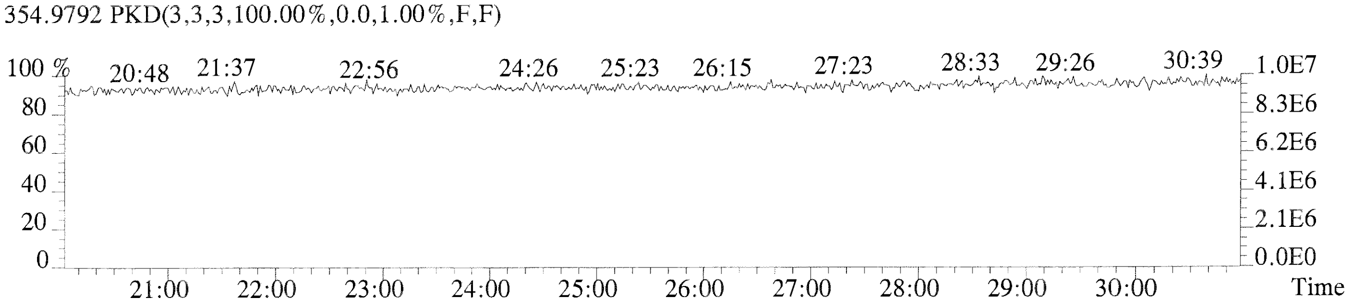
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



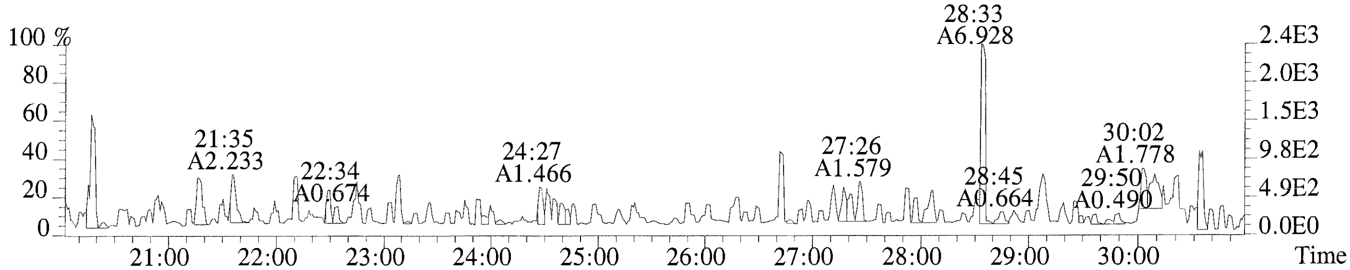
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



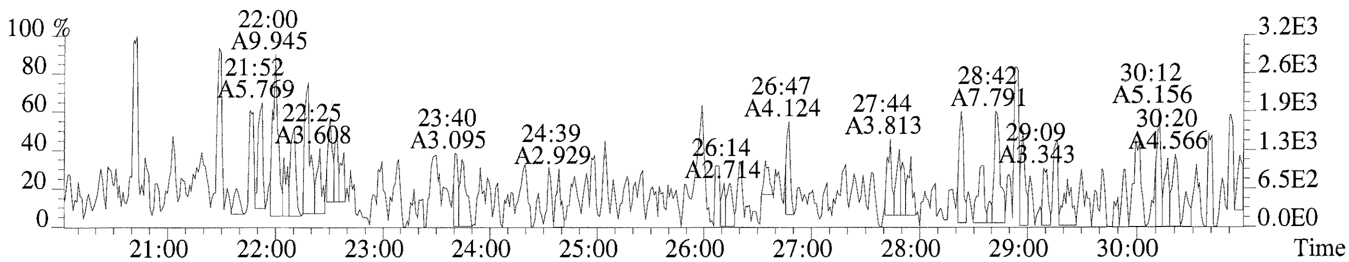
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



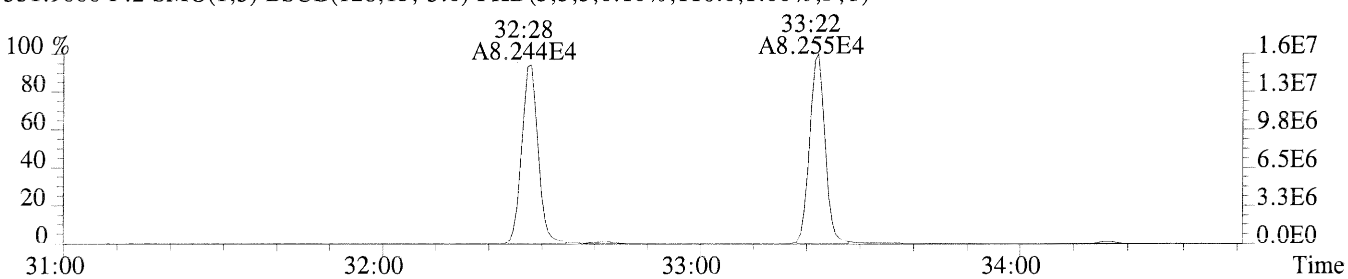
File:P230730 #1-687 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



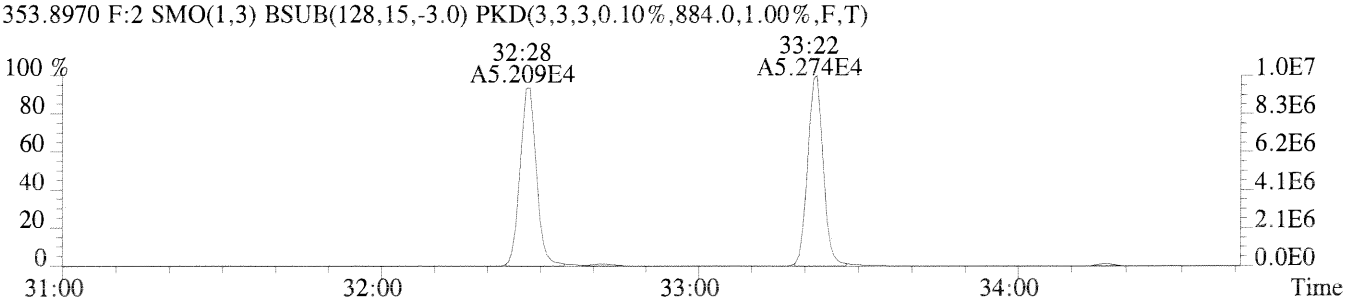
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



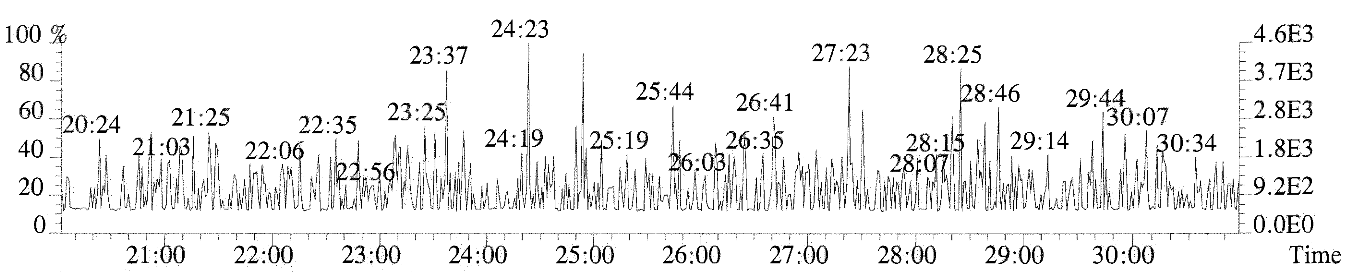
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,116.0,1.00%,F,T)



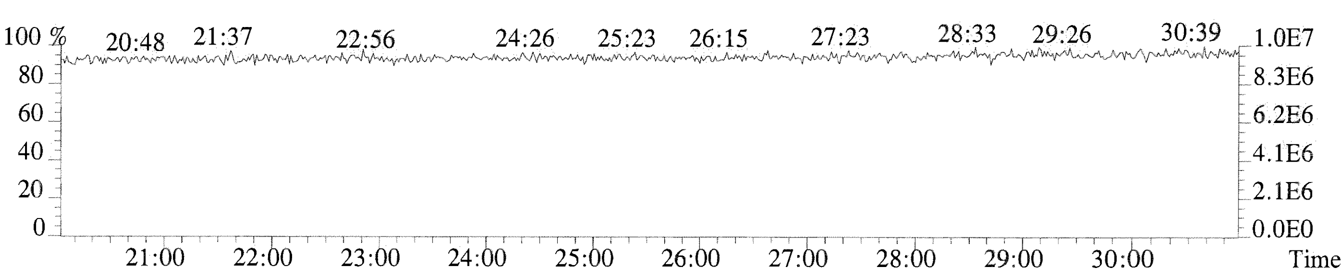
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

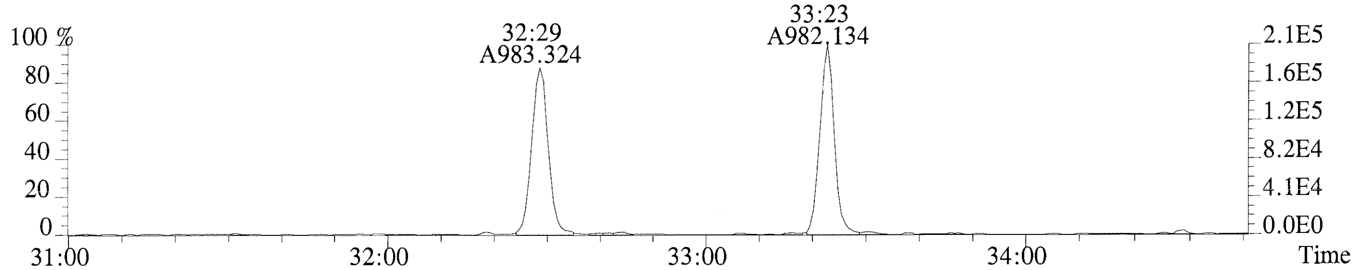


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

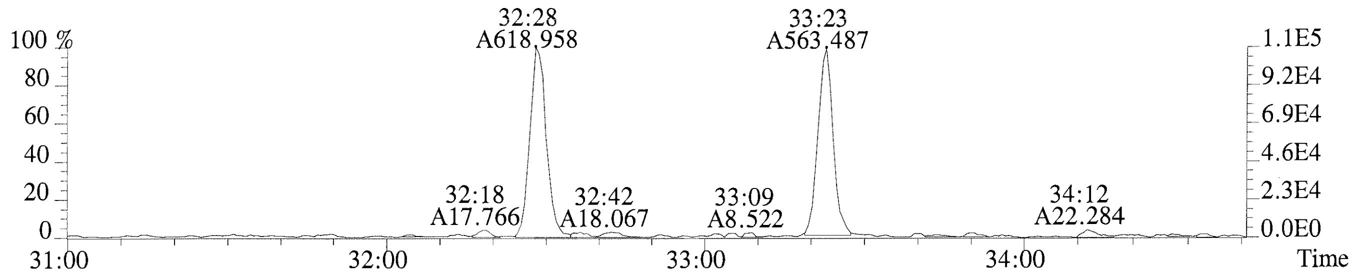


File:P230730 #1-335 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5

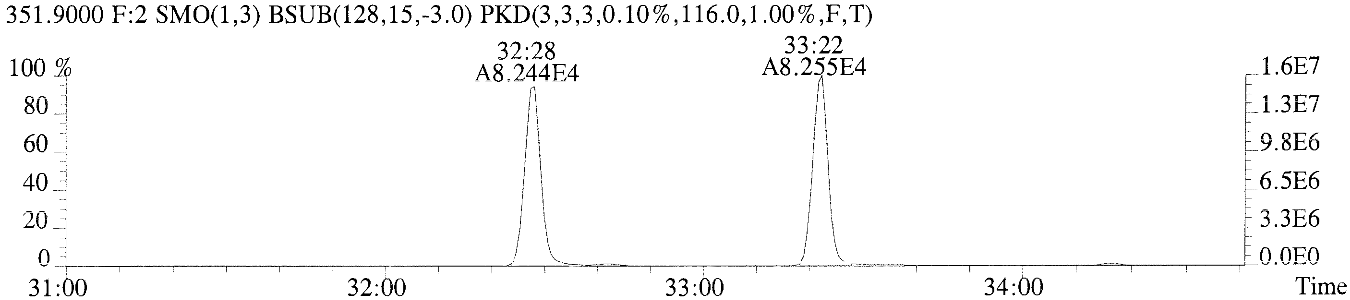
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



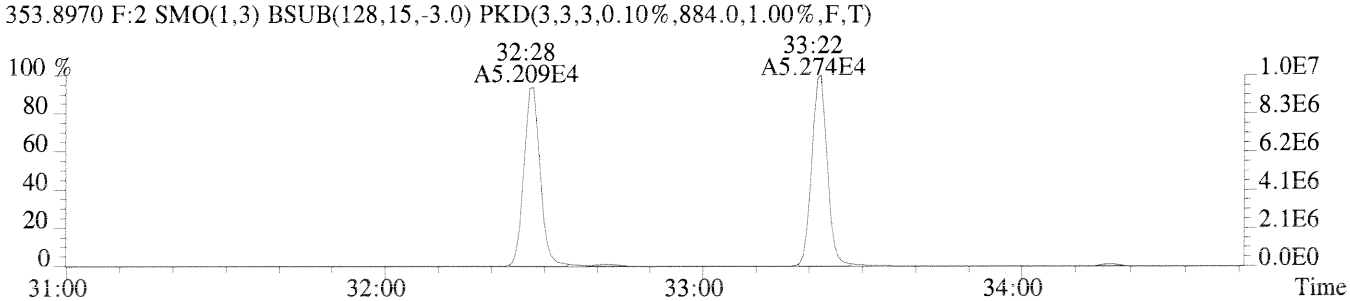
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



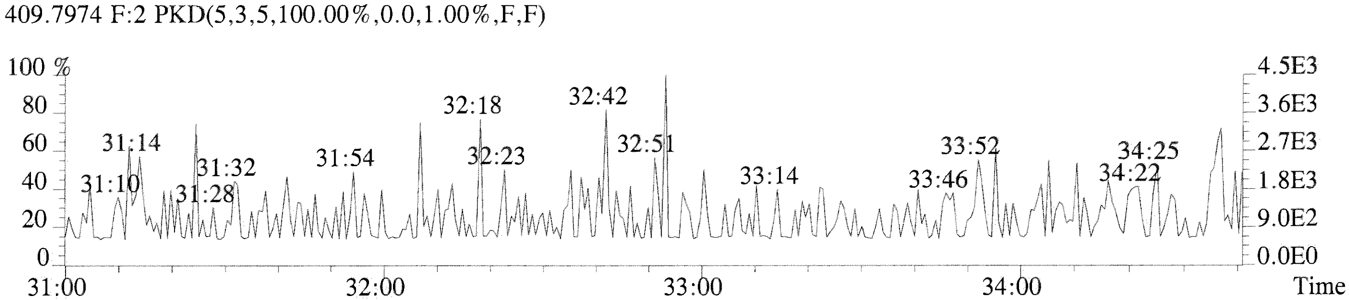
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,116.0,1.00%,F,T)



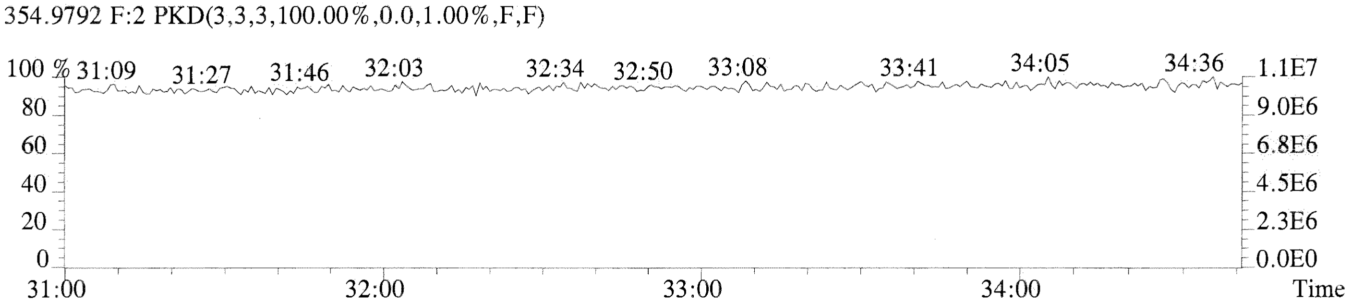
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



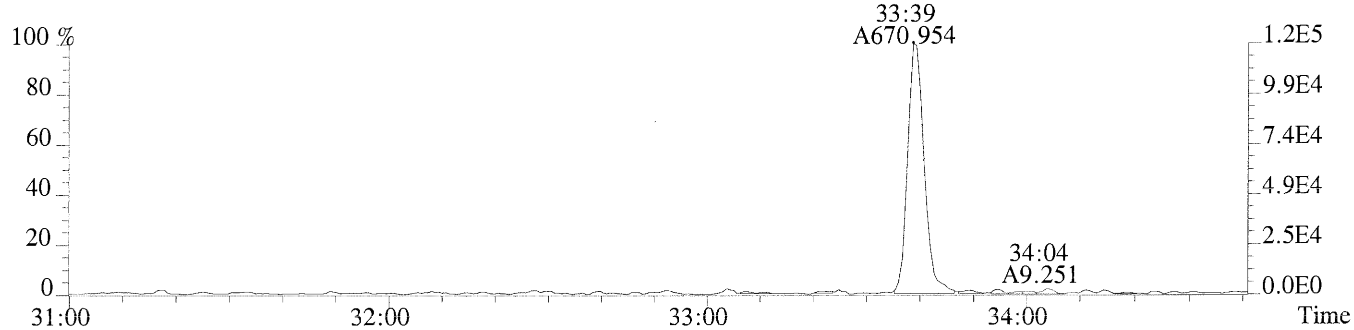
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



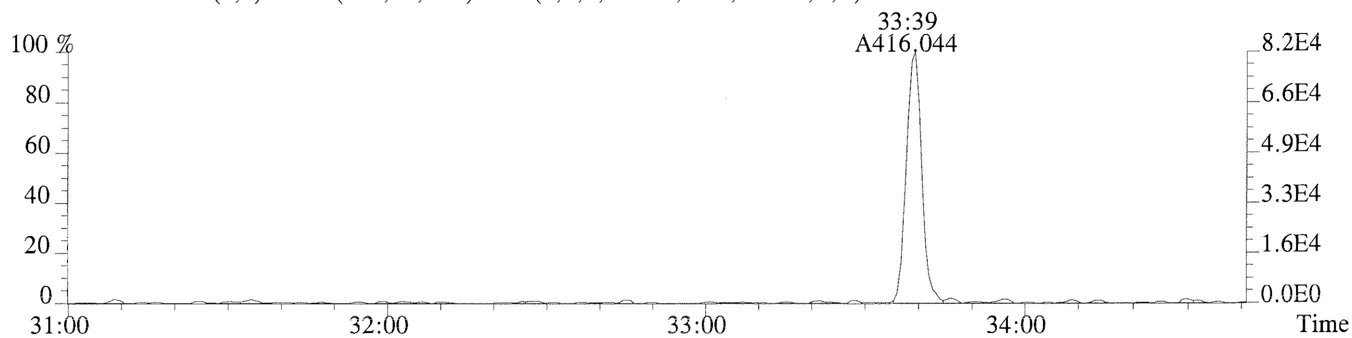
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



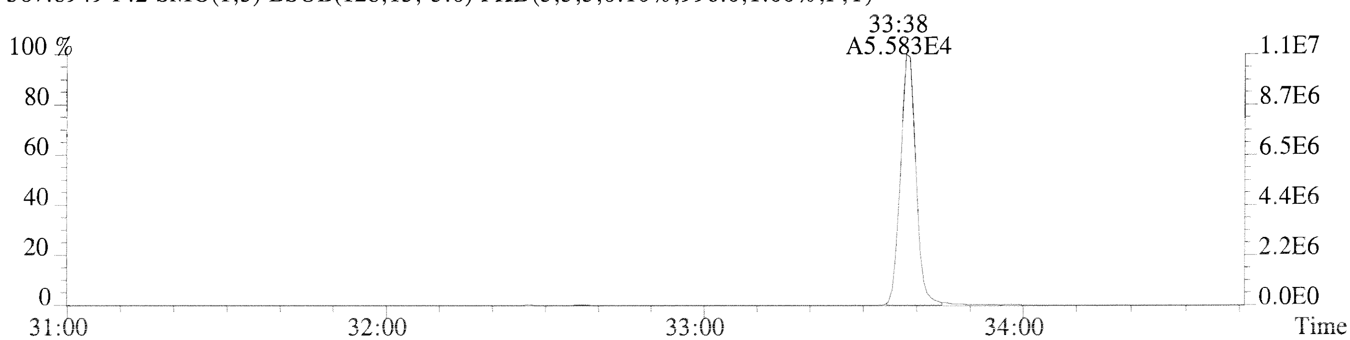
File:P230730 #1-335 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



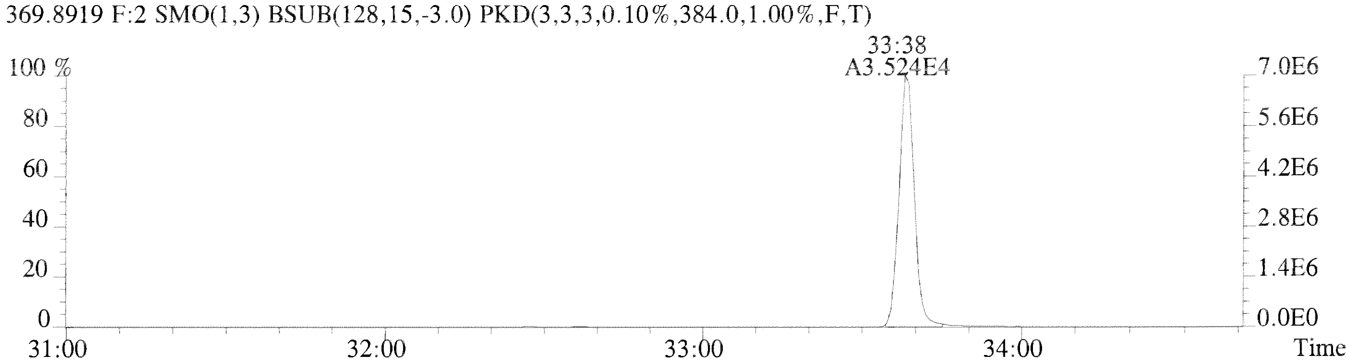
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



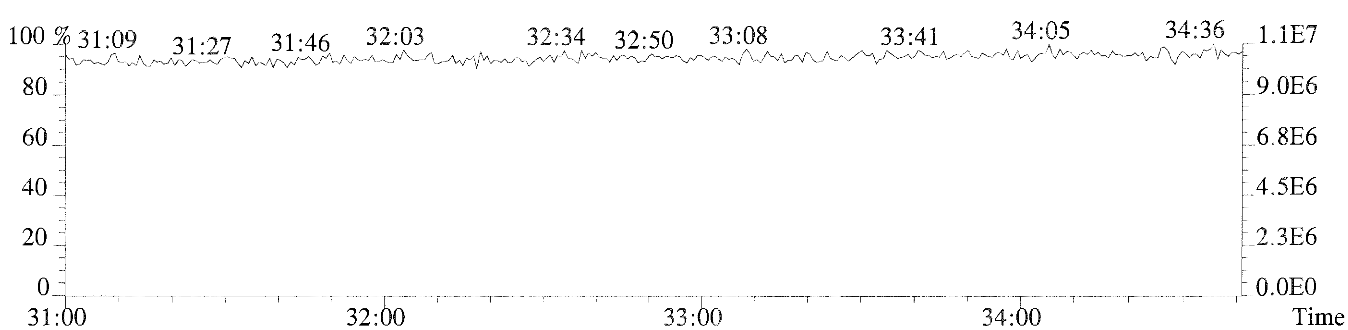
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)

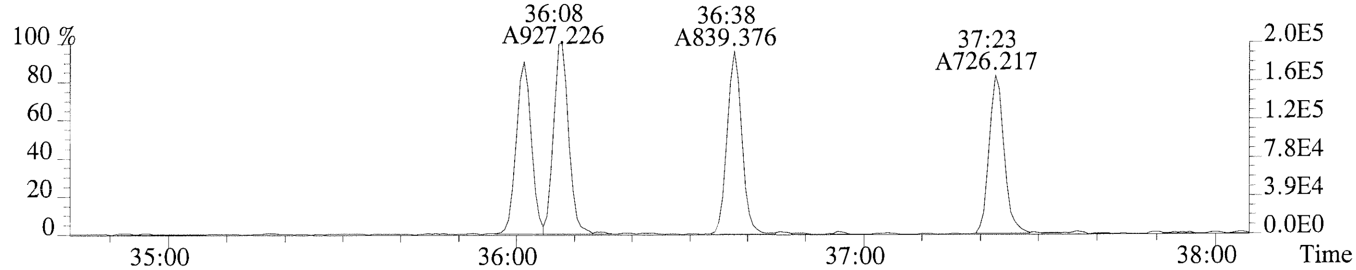


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

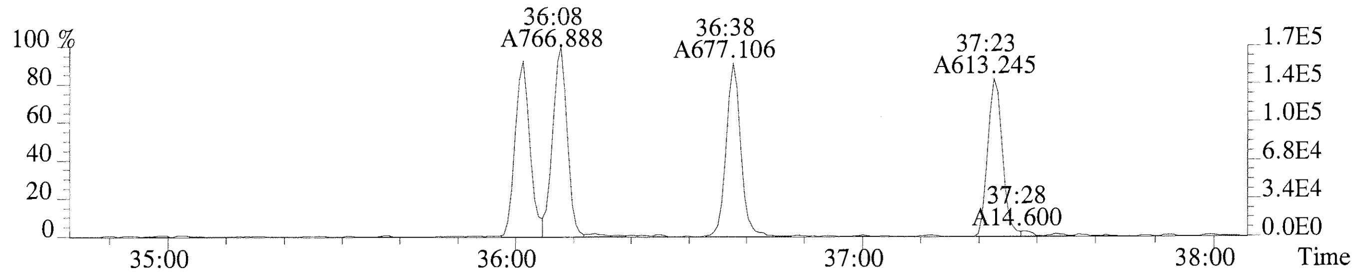


File:P230730 #1-307 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5

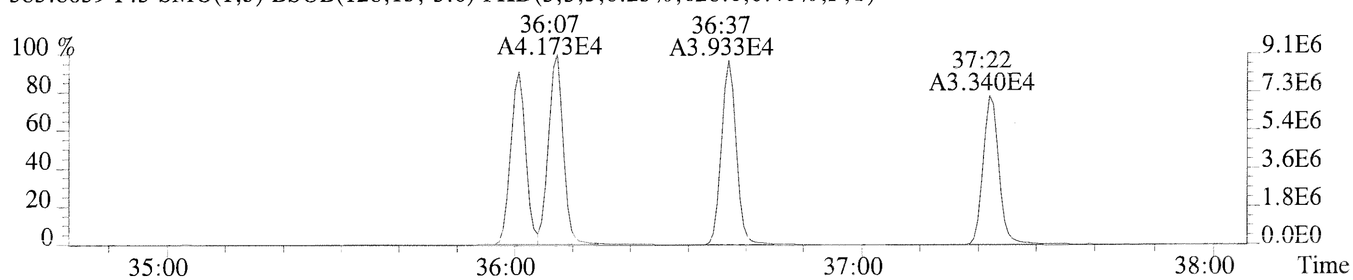
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



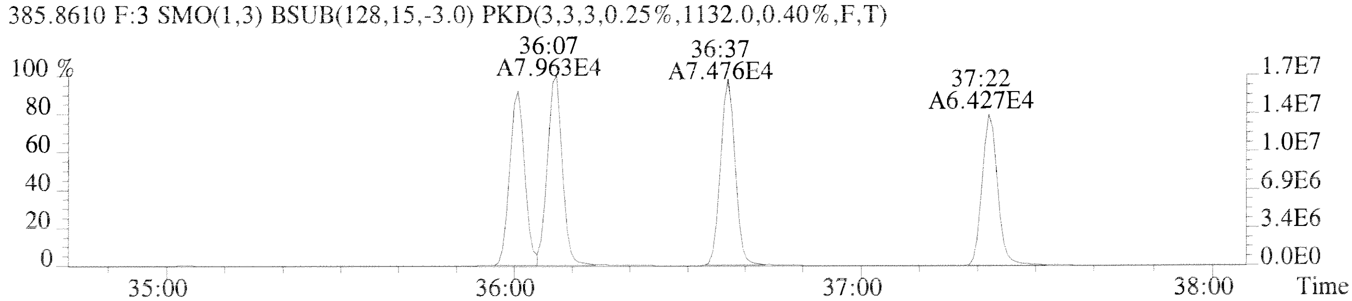
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



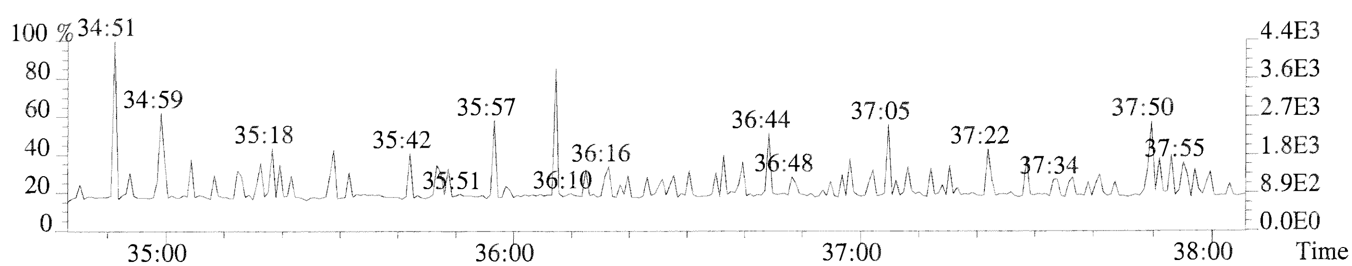
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



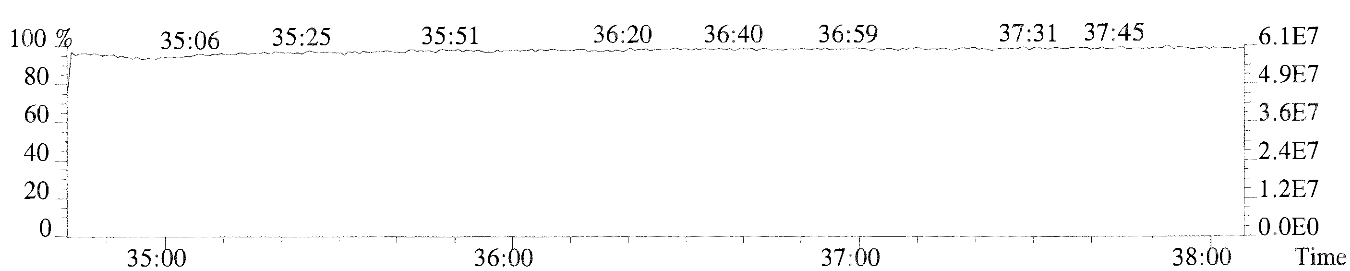
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



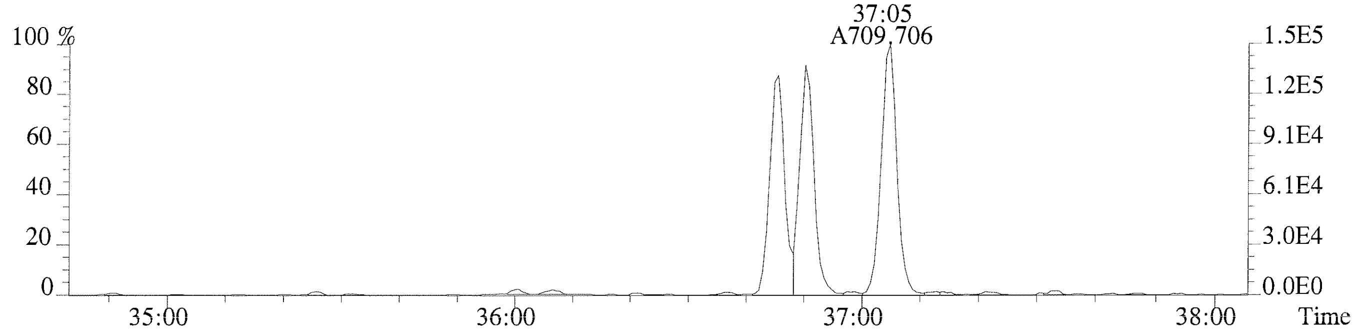
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



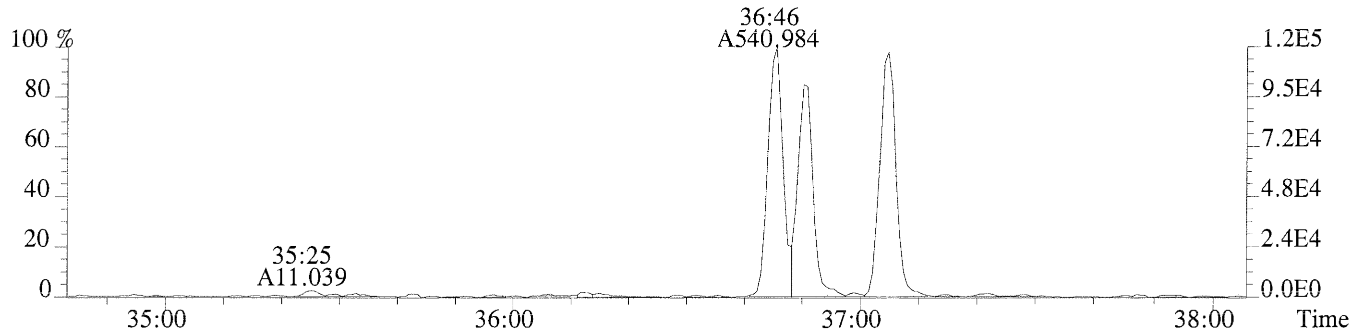
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



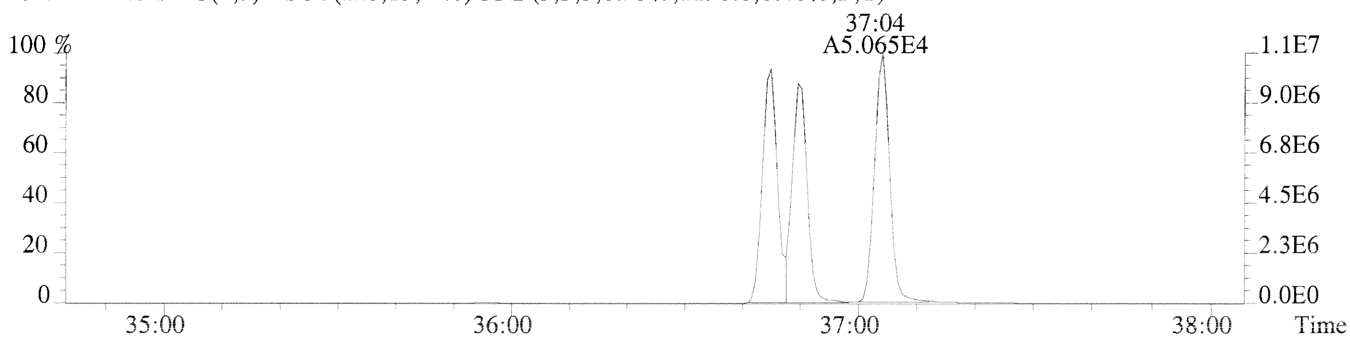
File:P230730 #1-307 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,64.0,0.40%,F,T)



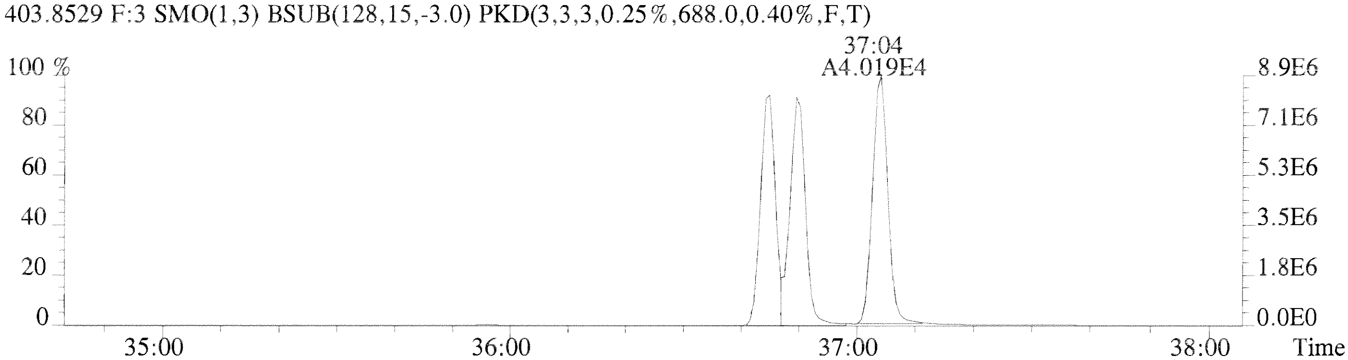
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



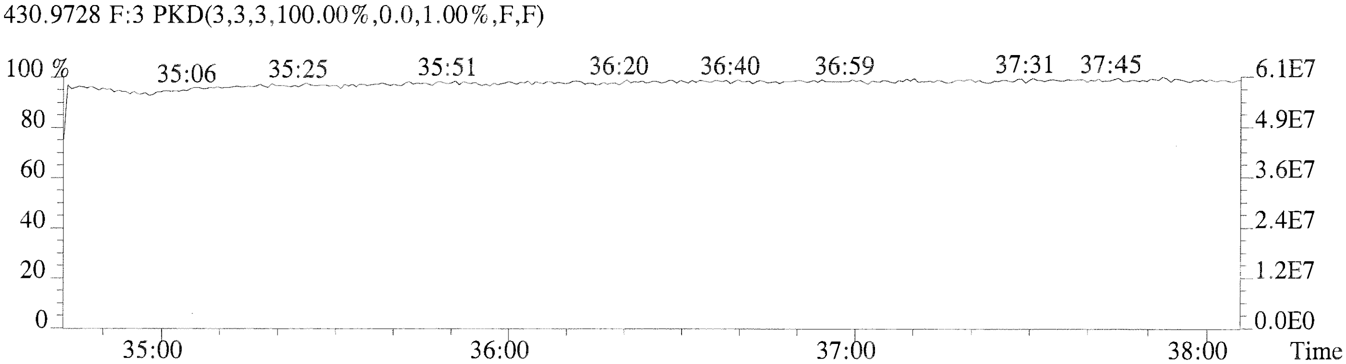
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



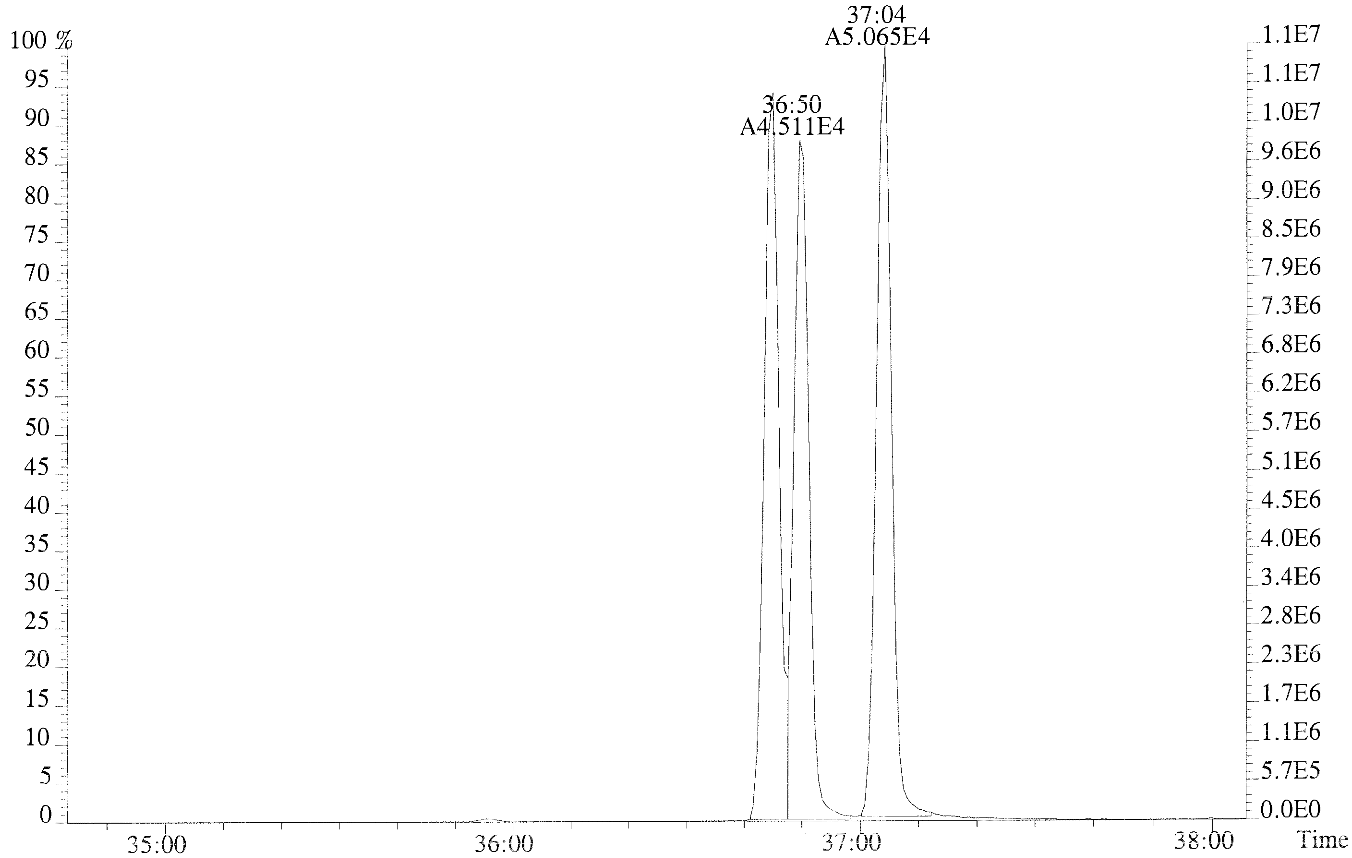
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



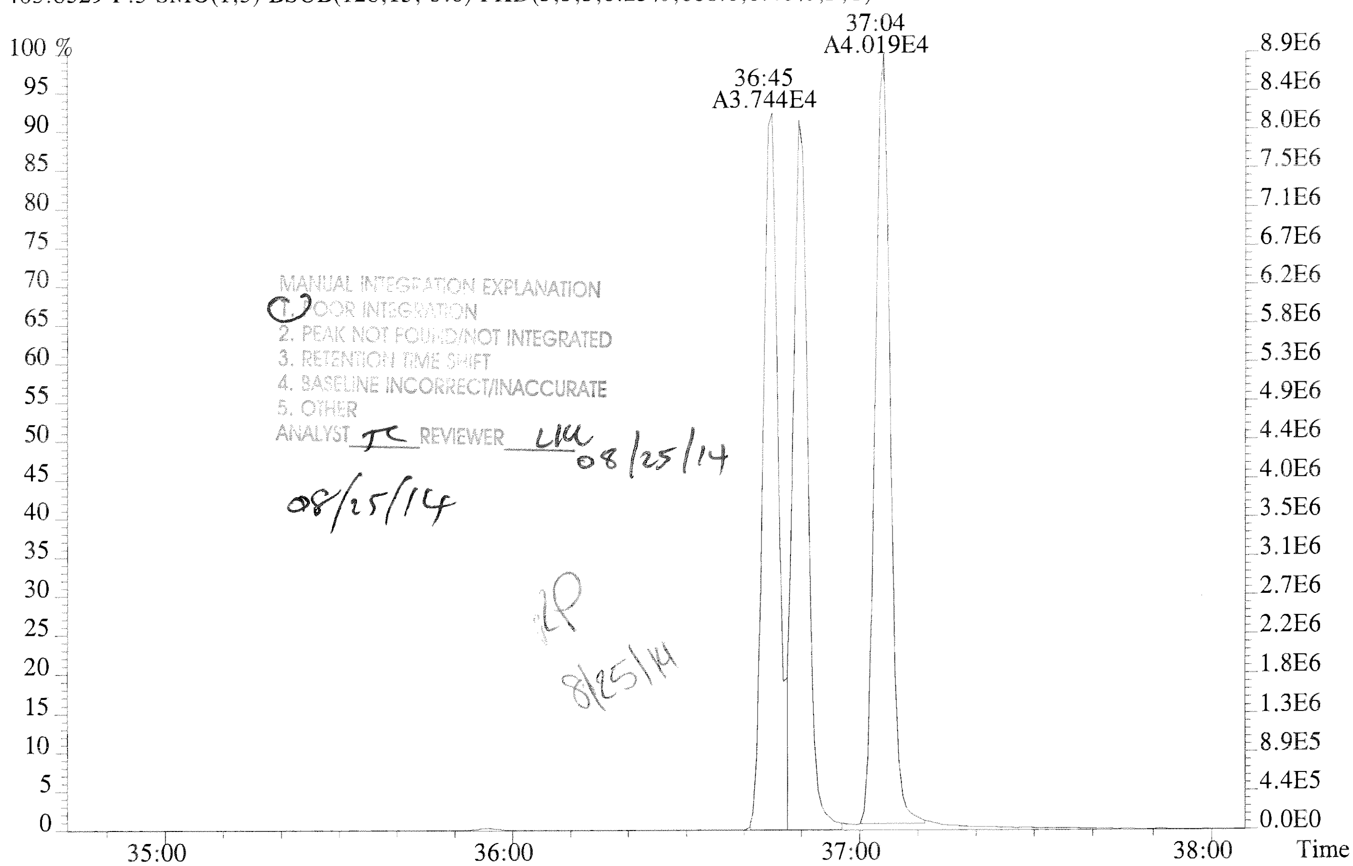
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230730 #1-307 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)

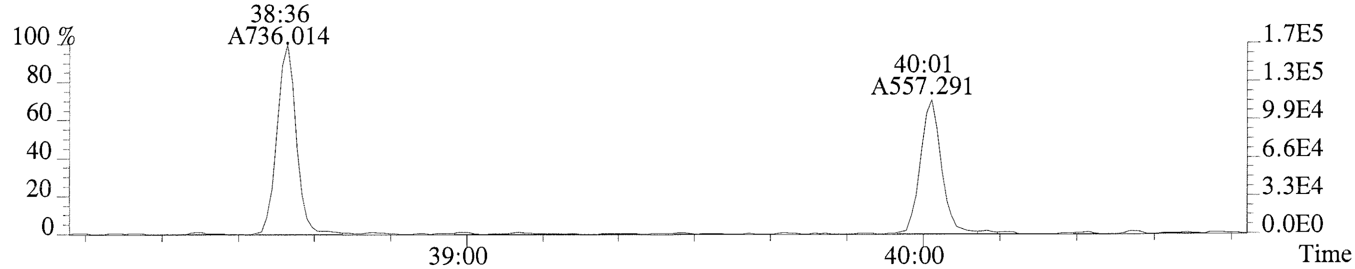


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER LK 08/25/14
08/25/14

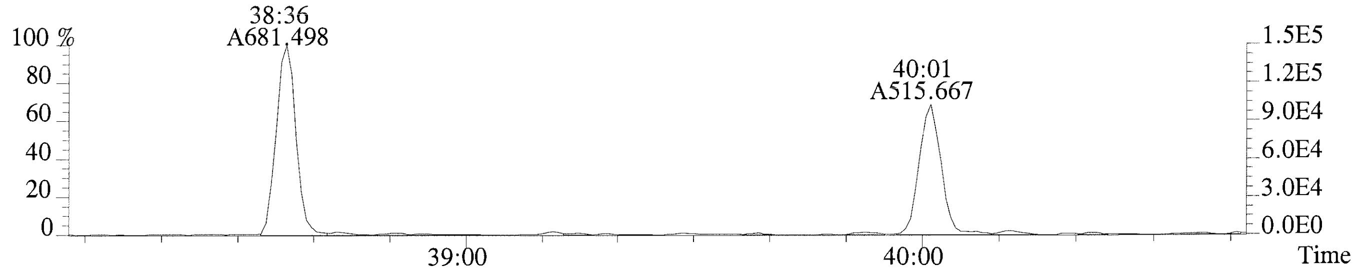
JP
8/25/14

File:P230730 #1-234 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5

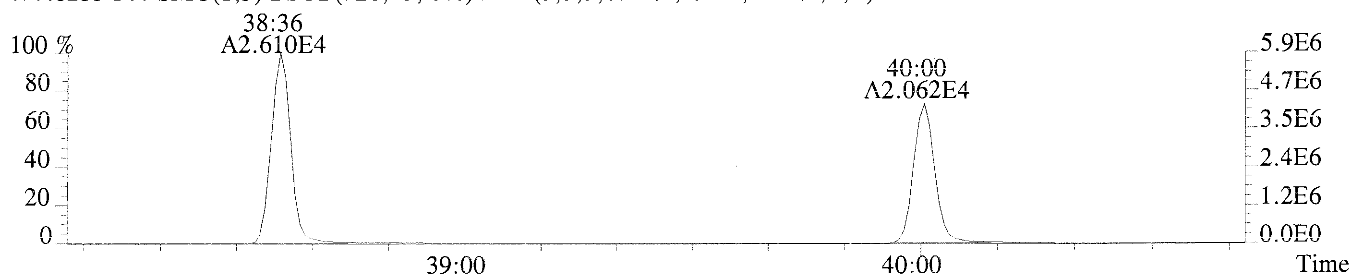
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



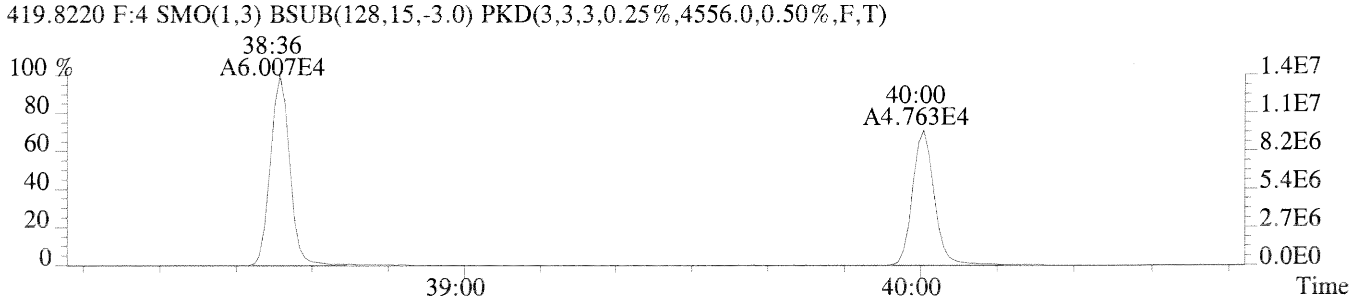
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



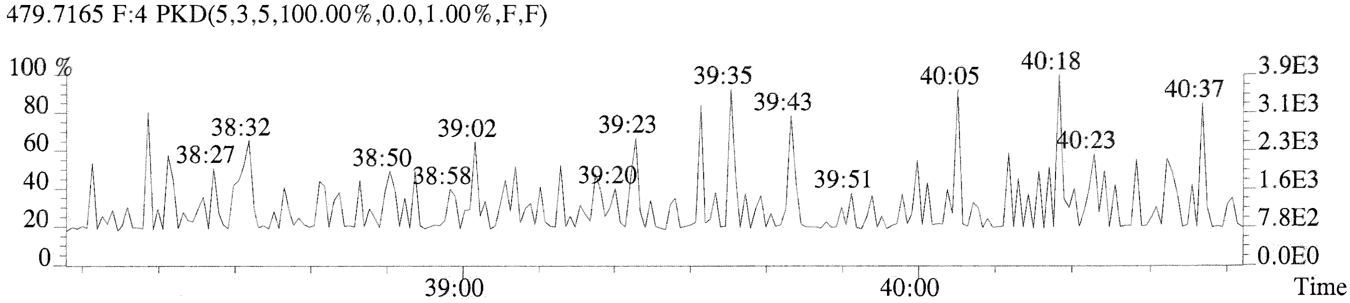
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.50%,F,T)



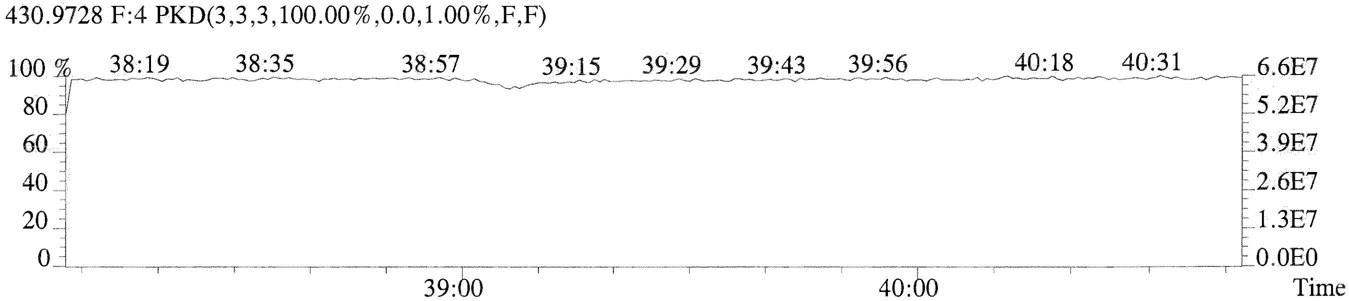
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4556.0,0.50%,F,T)



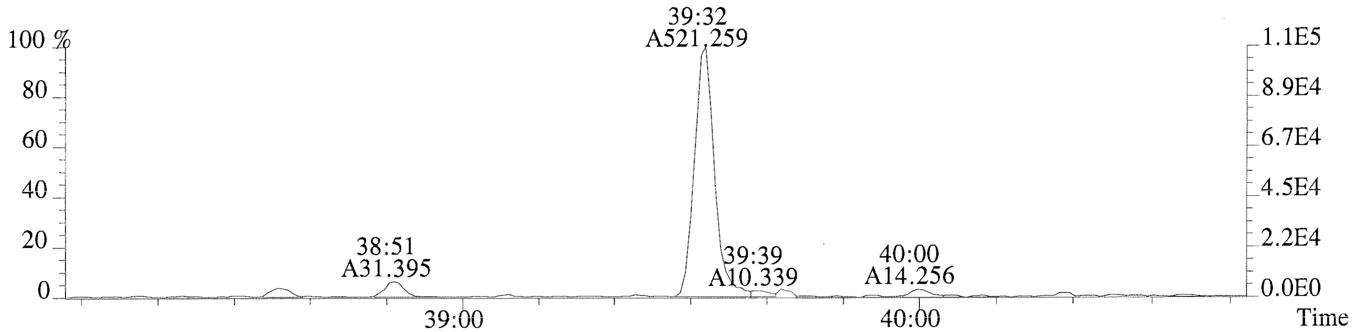
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



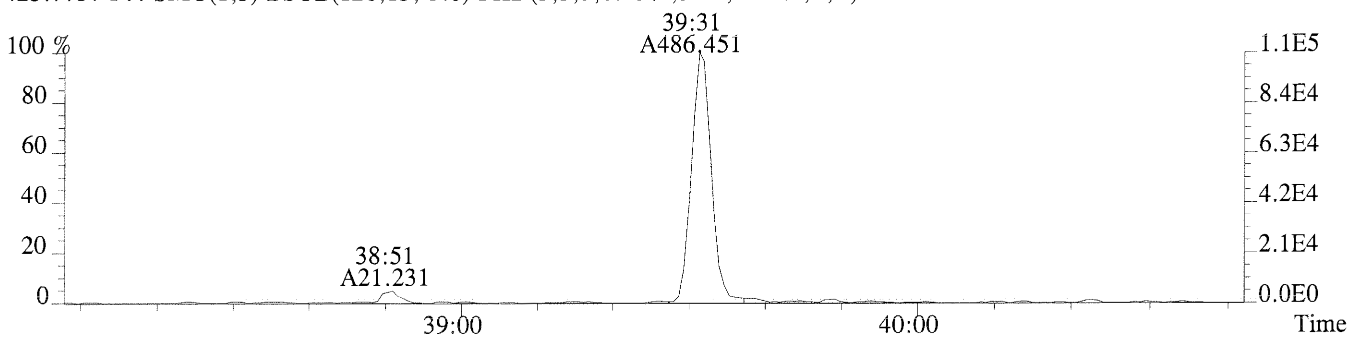
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



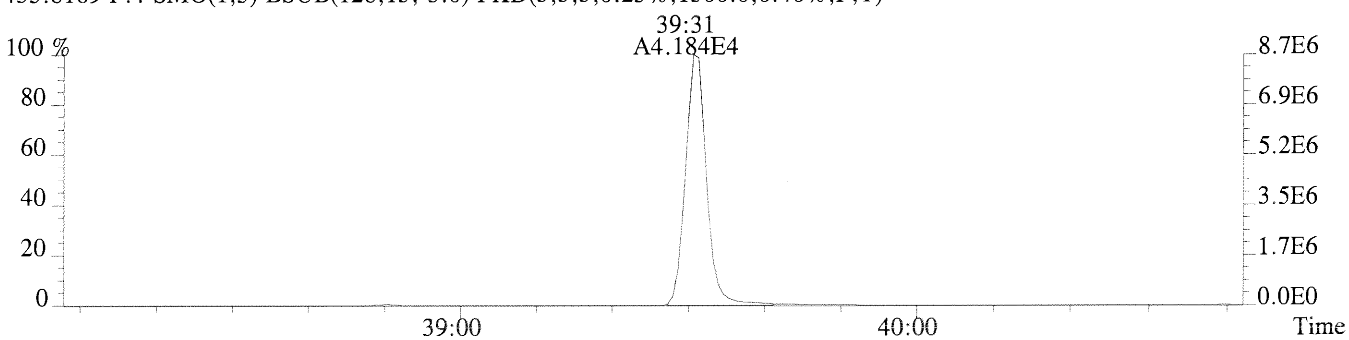
File:P230730 #1-234 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



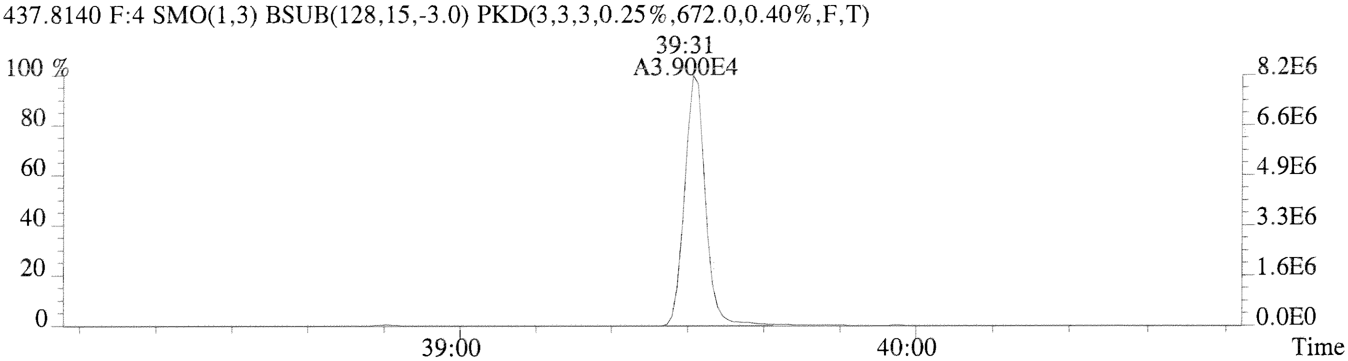
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52.0,0.40%,F,T)



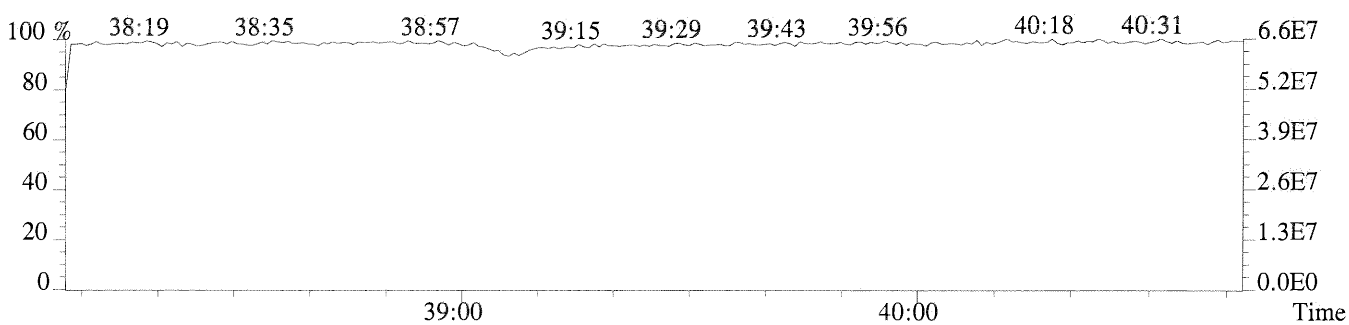
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



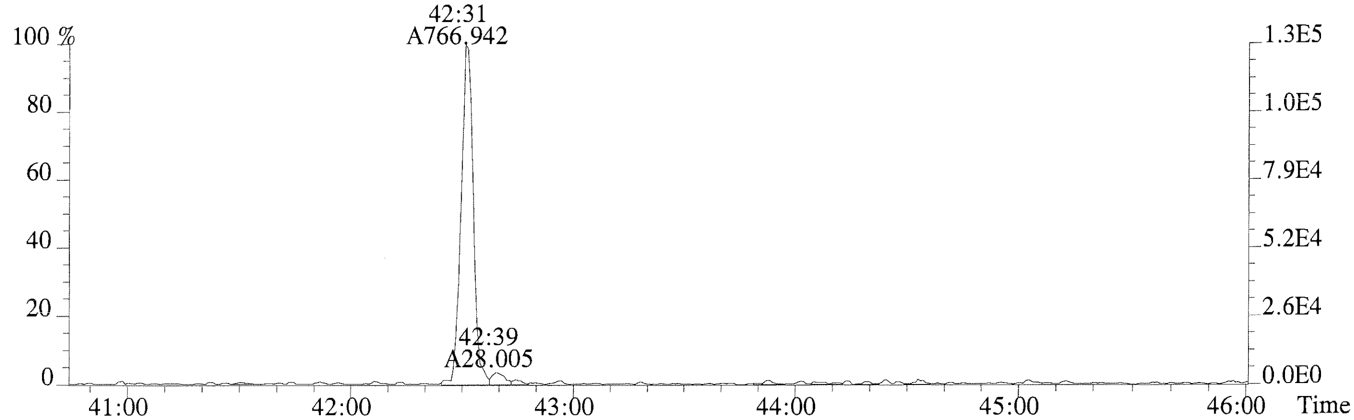
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



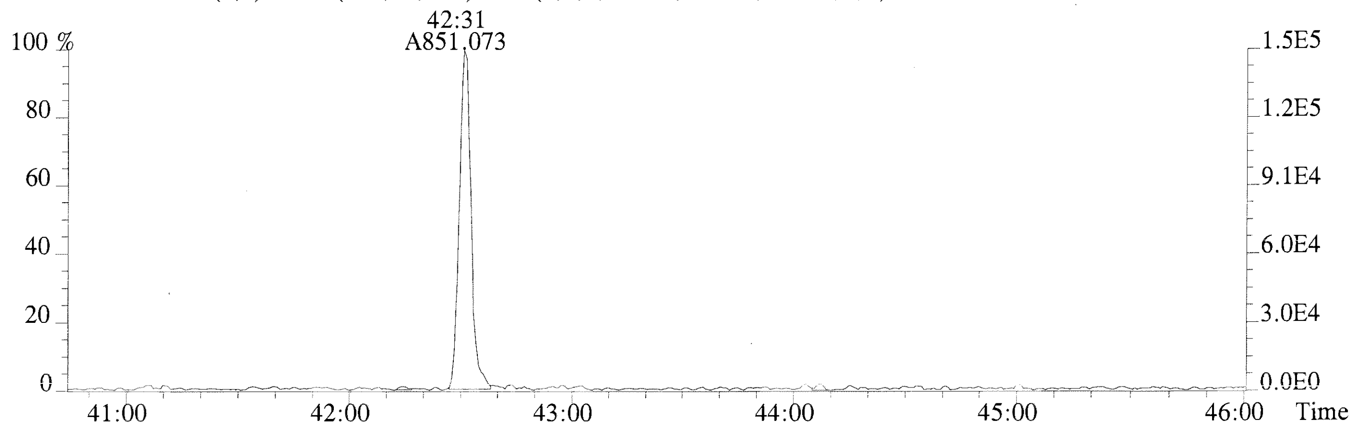
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



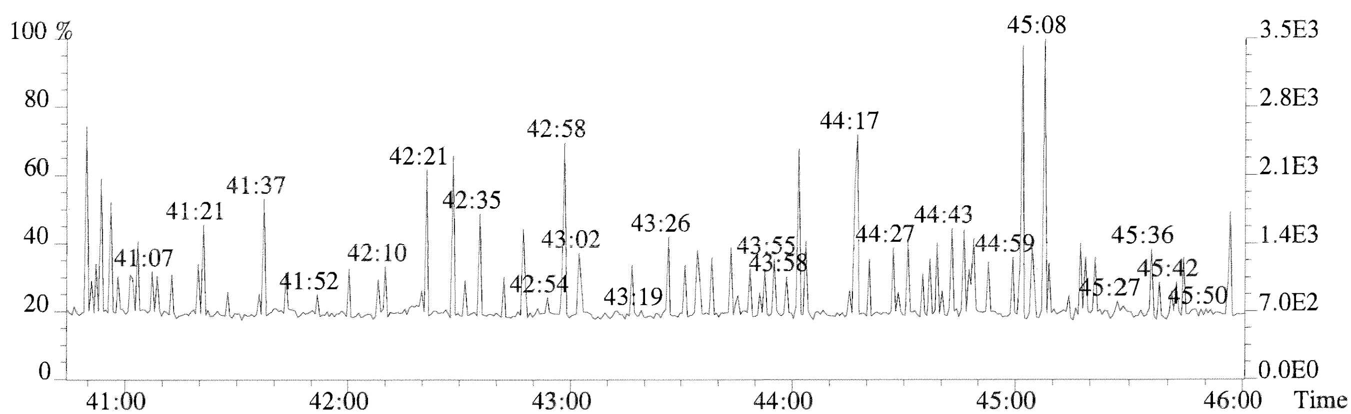
File:P230730 #1-485 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



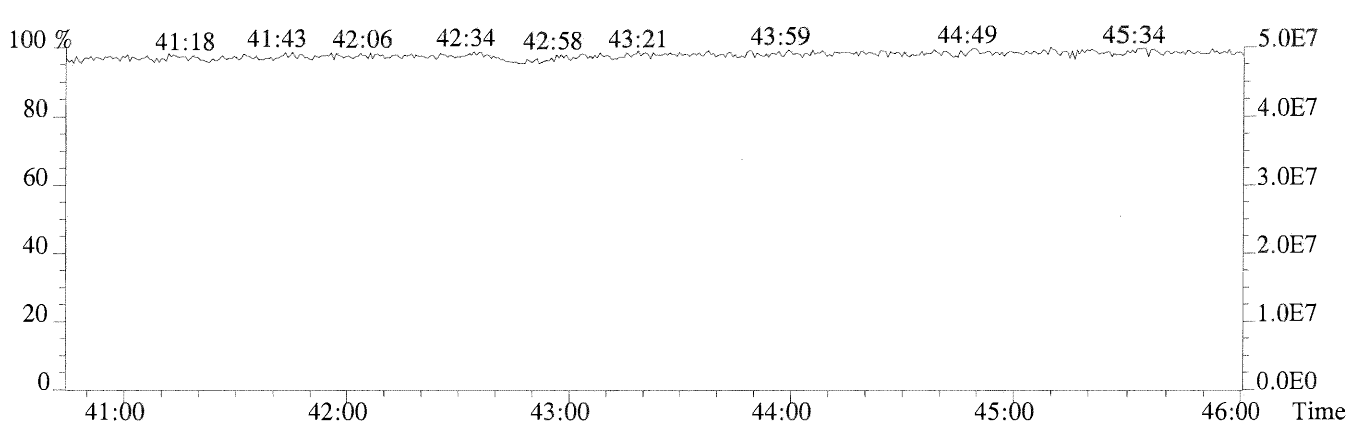
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



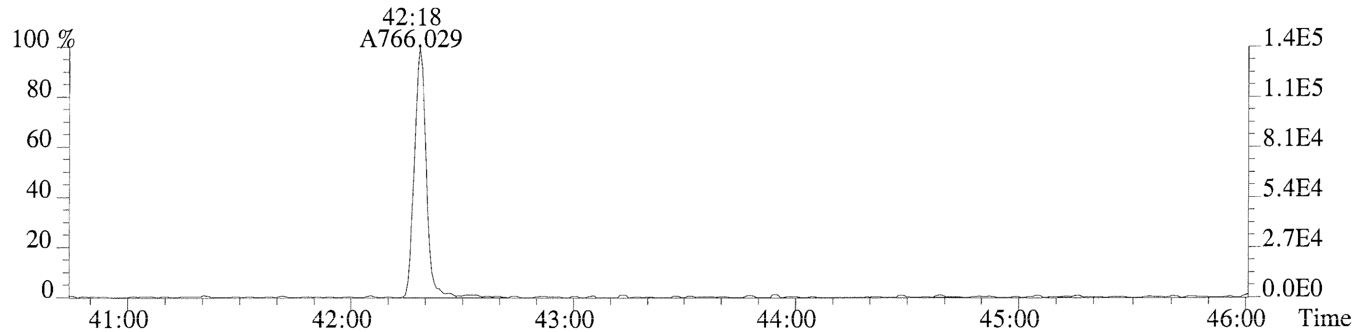
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



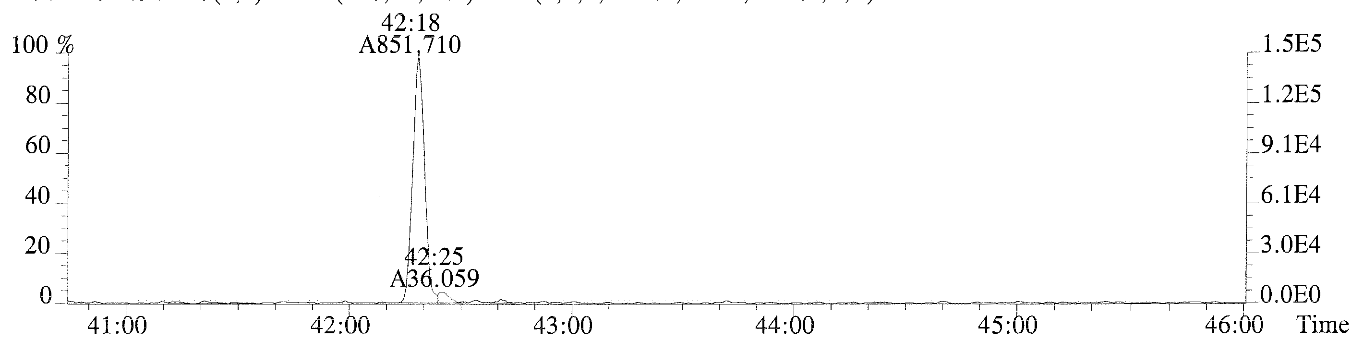
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



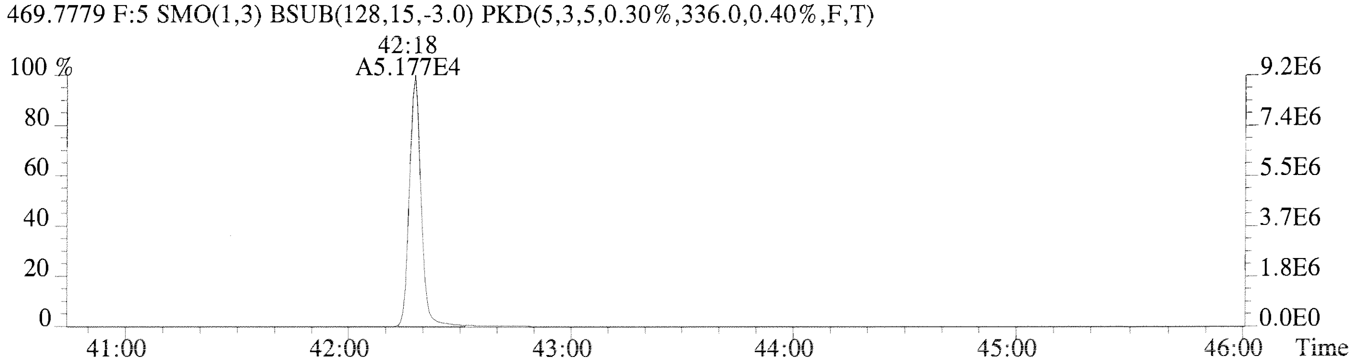
File:P230730 #1-485 Acq:24-AUG-2014 11:23:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



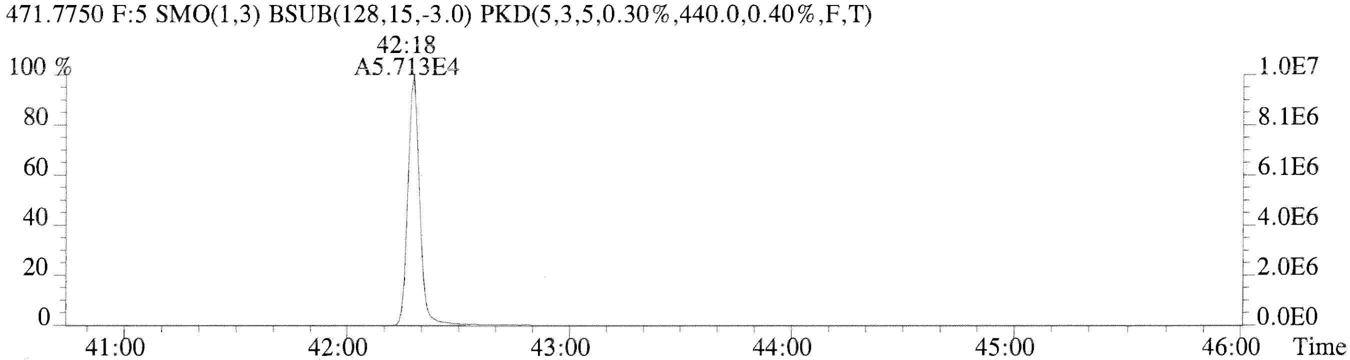
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



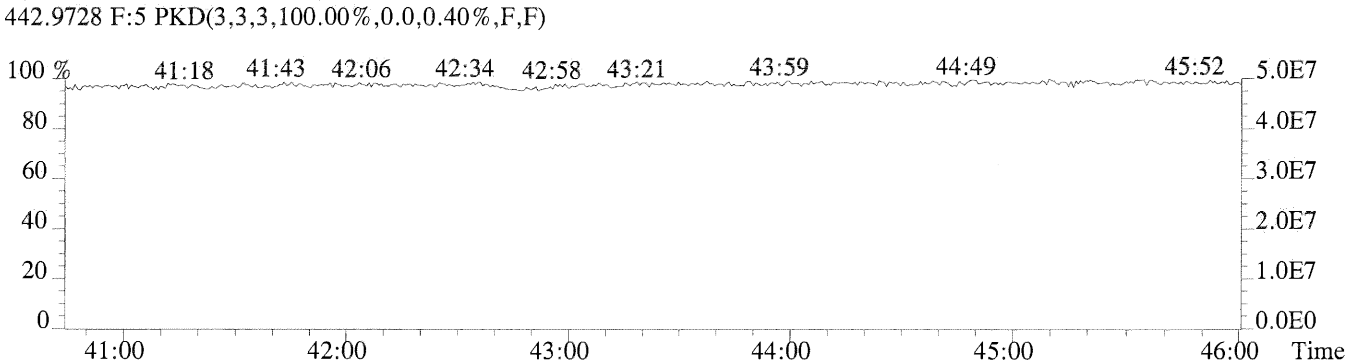
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CS1

Run #2 Filename P230731 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 12:10:54
Processed: 25-AUG-14 11:37:33 LAB. ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:19	2.933e+02	3.603e+02	0.81	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	2.504e+03	1.666e+03	1.50	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	2.444e+03	1.612e+03	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	2.115e+03	1.810e+03	1.17	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	2.303e+03	1.865e+03	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	2.077e+03	1.722e+03	1.21	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.736e+03	1.362e+03	1.27	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	1.748e+03	1.600e+03	1.09	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	1.159e+03	1.047e+03	1.11	yes	no	1.000
10	Unk	OCDF	42:32	1.823e+03	1.973e+03	0.92	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:06	2.077e+02	2.535e+02	0.82	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	1.742e+03	1.078e+03	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.585e+03	1.225e+03	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:51	1.531e+03	1.282e+03	1.19	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	1.651e+03	1.380e+03	1.20	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	1.270e+03	1.203e+03	1.06	yes	no	1.000
17	Unk	OCDD	42:18	1.698e+03	2.031e+03	0.84	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:18	5.630e+04	7.081e+04	0.80	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.003e+05	6.302e+04	1.59	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	9.972e+04	6.291e+04	1.59	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	4.352e+04	8.390e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	4.917e+04	9.400e+04	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	4.655e+04	8.946e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	3.720e+04	7.234e+04	0.51	yes	yes	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	3.060e+04	6.936e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.278e+04	5.113e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	3.781e+04	4.853e+04	0.78	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:39	6.873e+04	4.335e+04	1.59	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	5.625e+04	4.409e+04	1.28	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	5.569e+04	4.344e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	4.859e+04	4.571e+04	1.06	yes	no	1.066
32	IS	13C-OCDD	42:18	5.925e+04	6.554e+04	0.90	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	3.863e+04	4.843e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	6.031e+04	4.801e+04	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	4.935e+02				no	1.020

ALS ENVIRONMENTAL
10450 Stancliff, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

XLRESP

CLIENT ID.
CS1

Run #2 Filename P230731 Samp: 1 Inj: 1 Acquired: 24-AUG-14 12:10:54
Processed: 25-AUG-14 11:37:33 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.49e+04	5.24e+02	1.0e+02	7.08e+04	2.33e+03	3.0e+01
2	1,2,3,7,8-PeCDF	4.60e+05	5.64e+02	8.2e+02	3.12e+05	1.30e+03	2.4e+02
3	2,3,4,7,8-PeCDF	5.07e+05	5.64e+02	9.0e+02	3.13e+05	1.30e+03	2.4e+02
4	1,2,3,4,7,8-HxCDF	4.79e+05	6.56e+02	7.3e+02	3.98e+05	1.36e+02	2.9e+03
5	1,2,3,6,7,8-HxCDF	5.00e+05	6.56e+02	7.6e+02	3.93e+05	1.36e+02	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.67e+05	6.56e+02	7.1e+02	3.76e+05	1.36e+02	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.65e+05	6.56e+02	5.6e+02	2.83e+05	1.36e+02	2.1e+03
8	1,2,3,4,6,7,8-HpCDF	3.90e+05	5.20e+02	7.5e+02	3.64e+05	5.04e+02	7.2e+02
9	1,2,3,4,7,8,9-HpCDF	2.36e+05	5.20e+02	4.5e+02	2.18e+05	5.04e+02	4.3e+02
10	OCDF	3.14e+05	2.76e+02	1.1e+03	3.58e+05	1.34e+03	2.7e+02
11	2,3,7,8-TCDD	4.40e+04	7.56e+02	5.8e+01	6.32e+04	6.52e+02	9.7e+01
12	1,2,3,7,8-PeCDD	3.38e+05	8.52e+02	4.0e+02	2.16e+05	2.00e+02	1.1e+03
13	1,2,3,4,7,8-HxCDD	3.61e+05	5.20e+01	6.9e+03	2.72e+05	6.88e+02	4.0e+02
14	1,2,3,6,7,8-HxCDD	3.38e+05	5.20e+01	6.5e+03	2.77e+05	6.88e+02	4.0e+02
15	1,2,3,7,8,9-HxCDD	3.62e+05	5.20e+01	7.0e+03	2.98e+05	6.88e+02	4.3e+02
16	1,2,3,4,6,7,8-HpCDD	2.59e+05	4.32e+02	6.0e+02	2.51e+05	9.20e+01	2.7e+03
17	OCDD	3.01e+05	3.20e+01	9.4e+03	3.73e+05	3.36e+02	1.1e+03
18	13C-2,3,7,8-TCDF	1.14e+07	1.52e+03	7.5e+03	1.44e+07	1.41e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	1.87e+07	4.72e+02	4.0e+04	1.17e+07	1.95e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	2.00e+07	4.72e+02	4.2e+04	1.26e+07	1.95e+03	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	9.68e+06	9.36e+02	1.0e+04	1.86e+07	1.83e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.05e+07	9.36e+02	1.1e+04	2.01e+07	1.83e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.03e+07	9.36e+02	1.1e+04	1.99e+07	1.83e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.76e+06	9.36e+02	8.3e+03	1.51e+07	1.83e+03	8.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.76e+06	3.14e+03	2.2e+03	1.55e+07	1.80e+03	8.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.62e+06	3.14e+03	1.5e+03	1.05e+07	1.80e+03	5.8e+03
27	13C-2,3,7,8-TCDD	8.05e+06	4.62e+03	1.7e+03	1.03e+07	1.77e+03	5.8e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	8.20e+02	1.6e+04	8.55e+06	4.00e+02	2.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.27e+07	1.39e+03	9.1e+03	9.92e+06	1.22e+03	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.21e+07	1.39e+03	8.7e+03	9.39e+06	1.22e+03	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	1.46e+03	6.9e+03	9.40e+06	3.88e+02	2.4e+04
32	13C-OCDD	1.05e+07	5.08e+02	2.1e+04	1.17e+07	6.80e+01	1.7e+05
33	13C-1,2,3,4-TCDD	8.07e+06	4.62e+03	1.7e+03	1.01e+07	1.77e+03	5.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.33e+07	1.39e+03	9.6e+03	1.06e+07	1.22e+03	8.7e+03
35	37Cl-2,3,7,8-TCDD	1.05e+05	1.24e+03	8.5e+01			

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10450 Stancliff Rd., Suite 115
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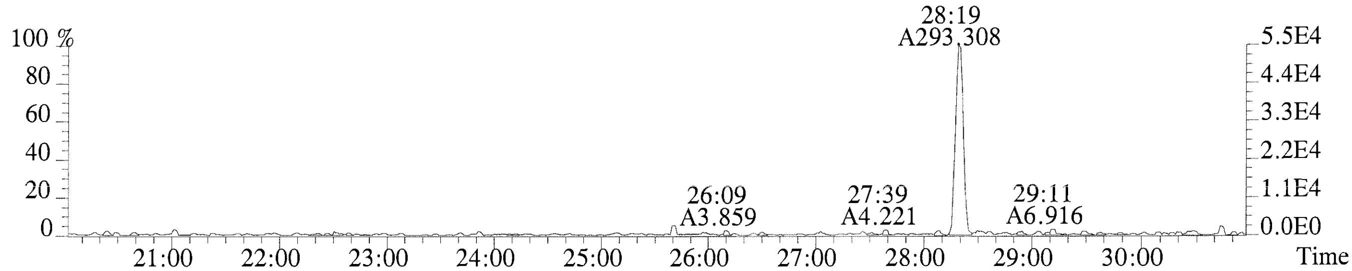
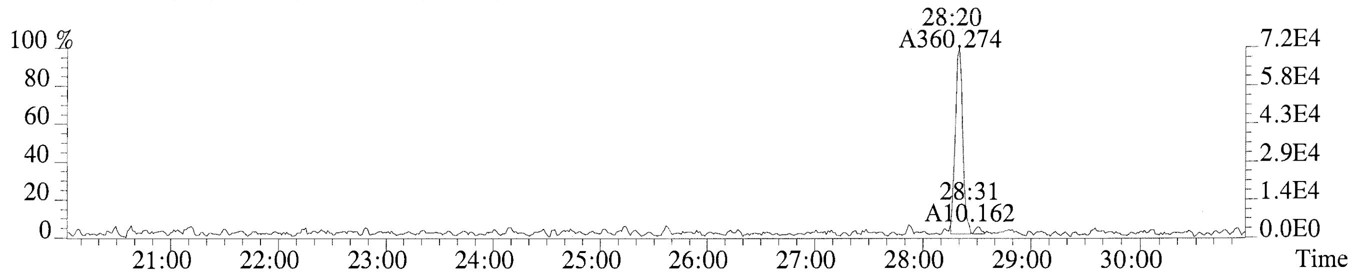
Office:(713)266-1599. Fax:(713)266-0130

XLSN

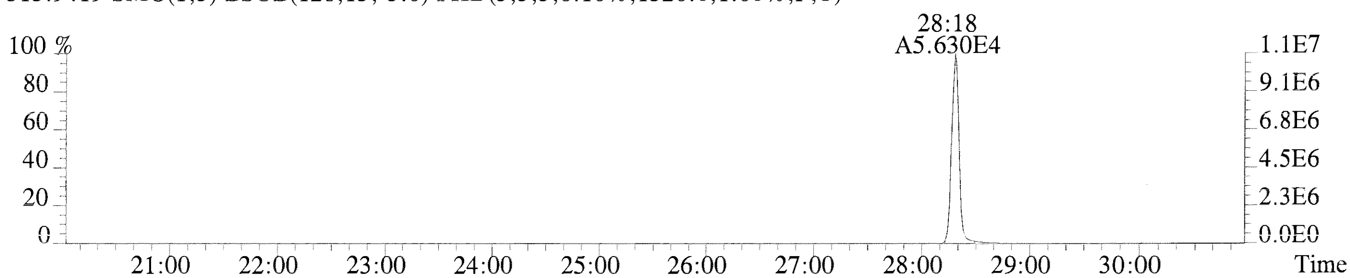
File:P230731 #1-687 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



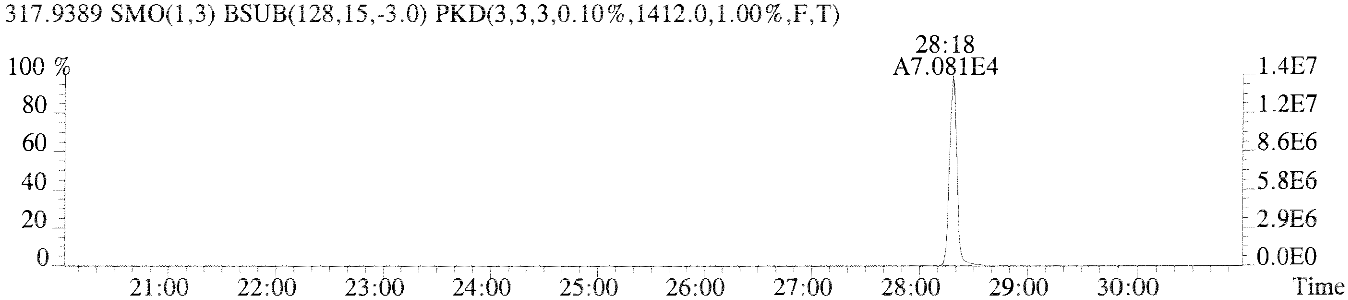
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



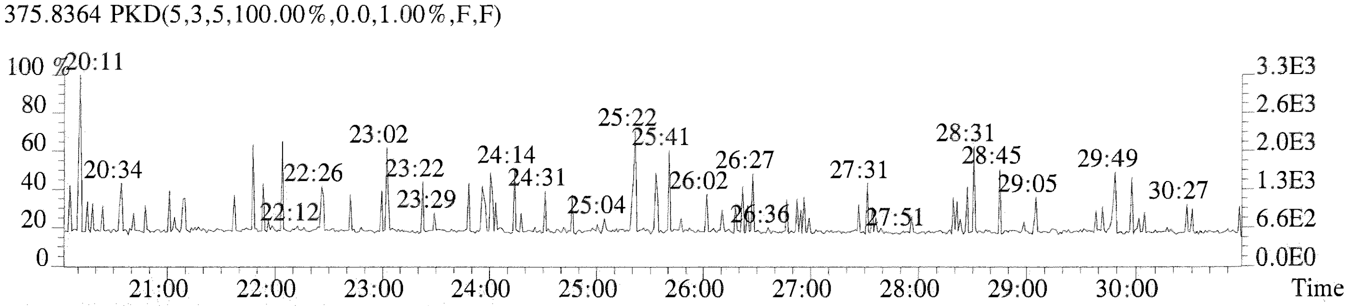
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



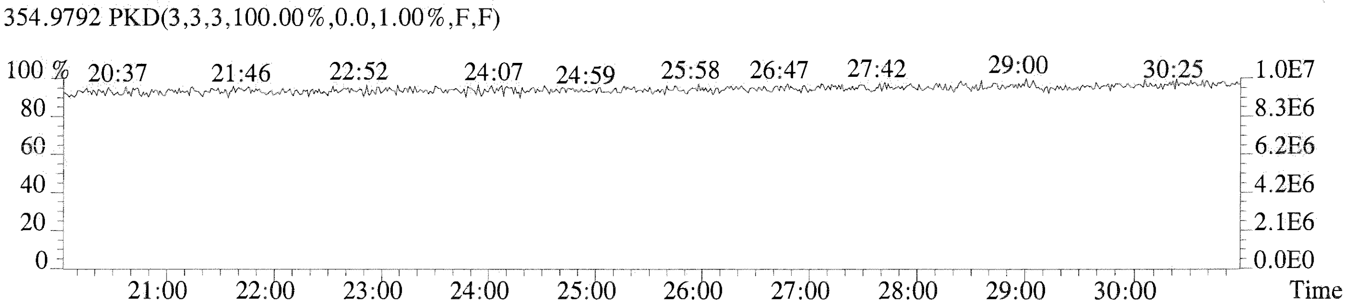
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



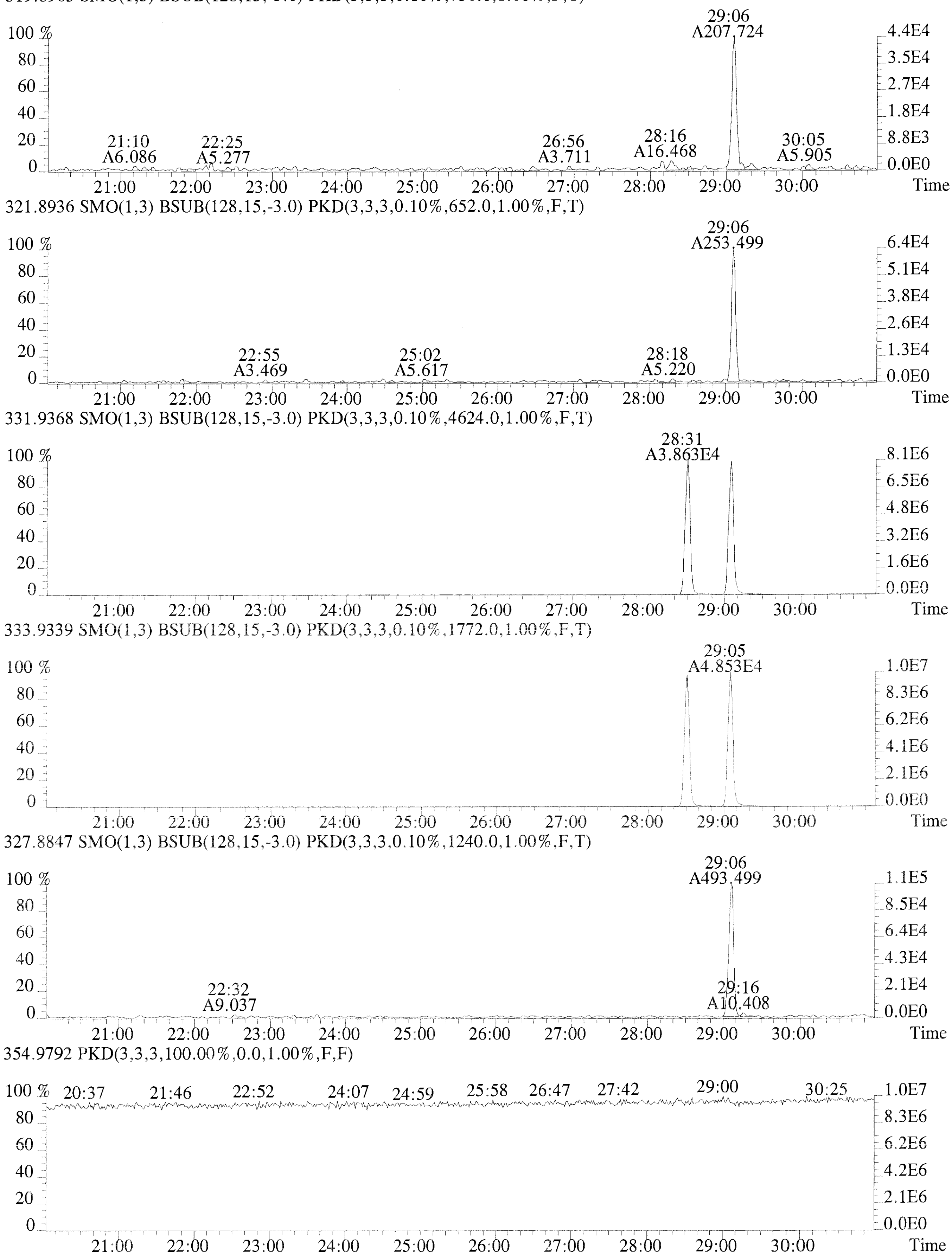
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



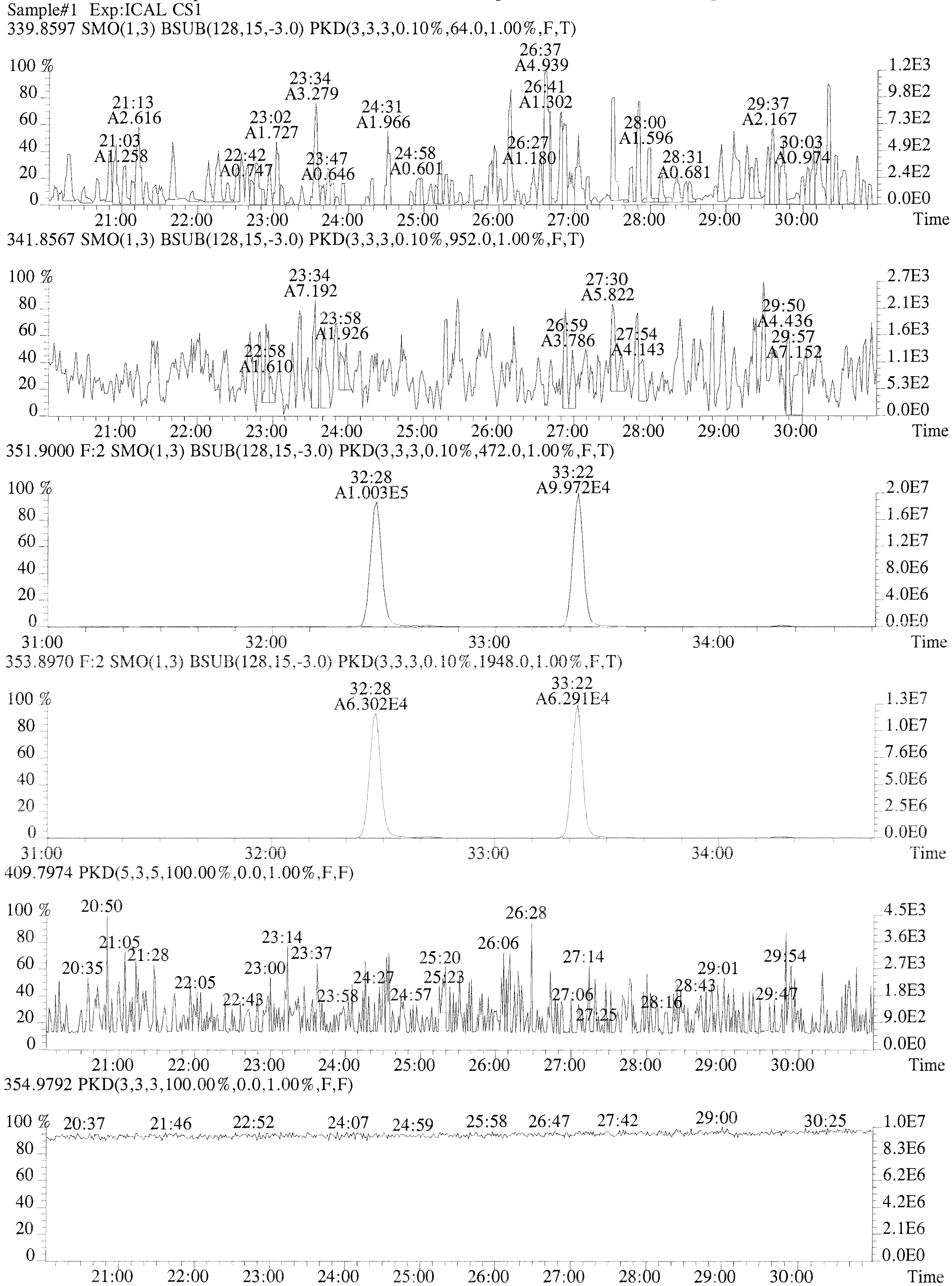
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



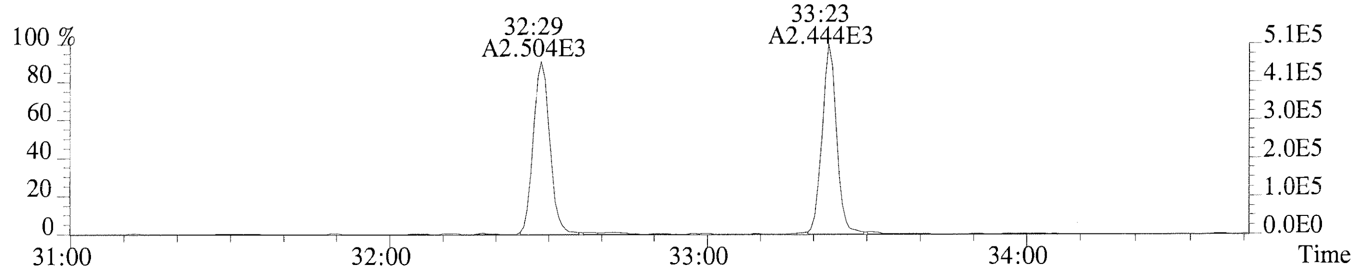
File:P230731 #1-687 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1



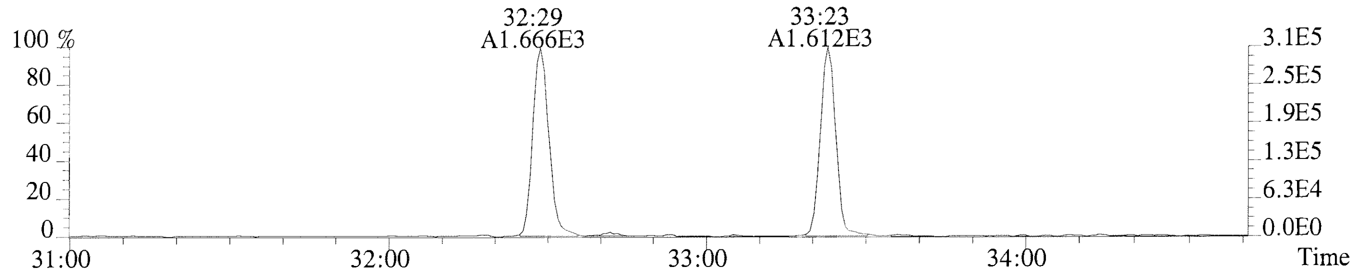
File:P230731 #1-687 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1



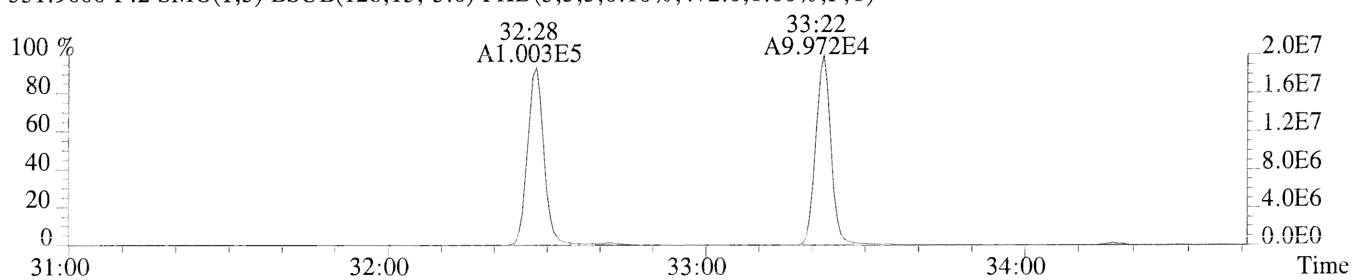
File:P230731 #1-335 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



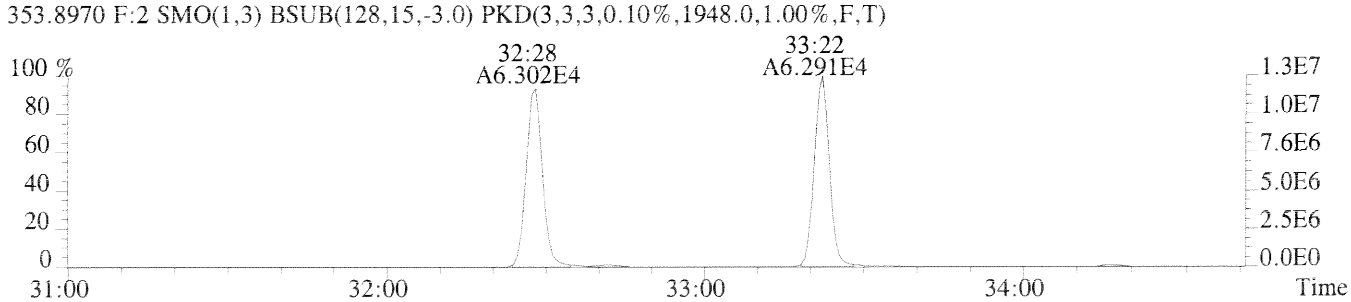
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



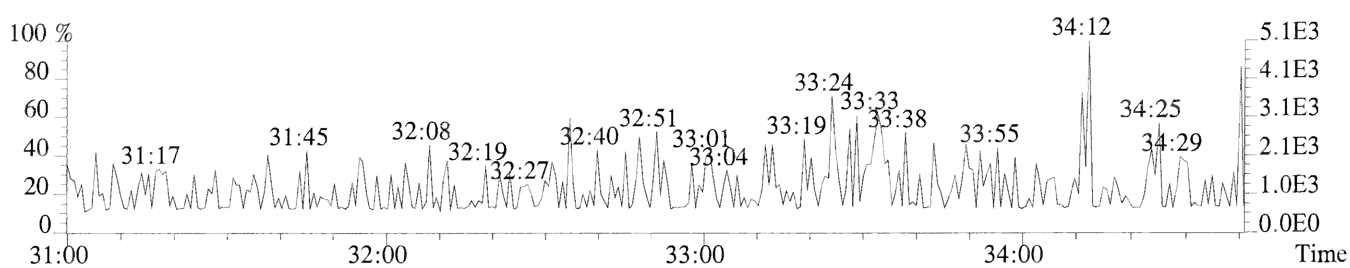
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



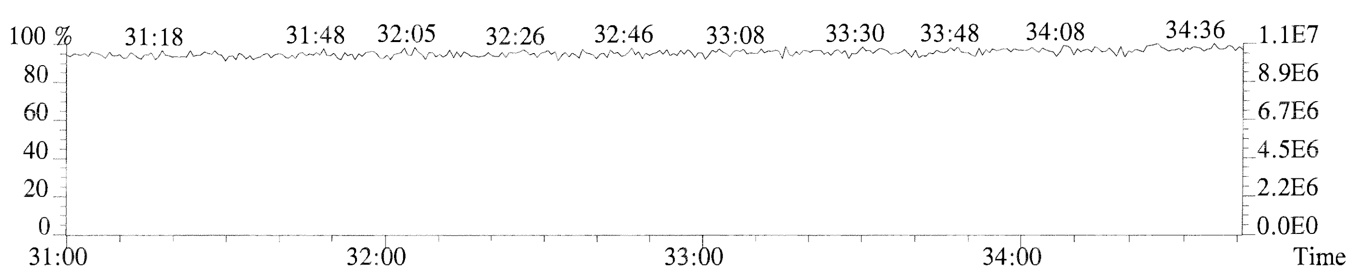
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



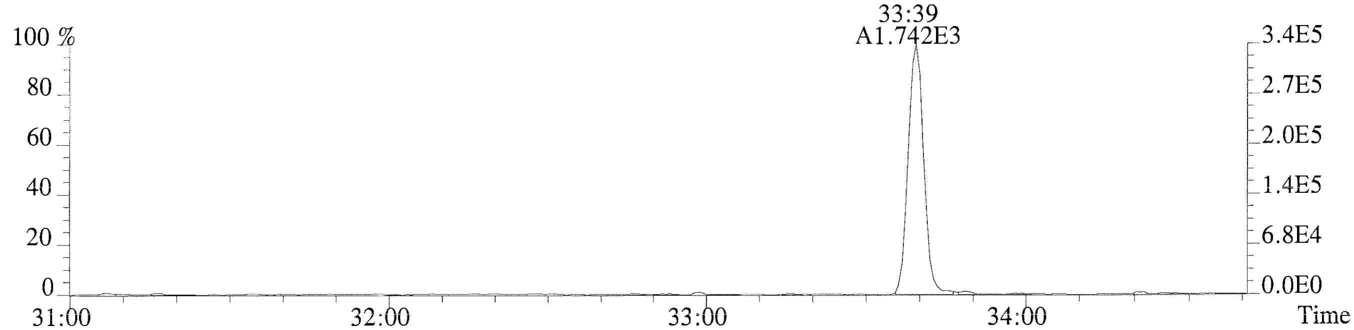
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



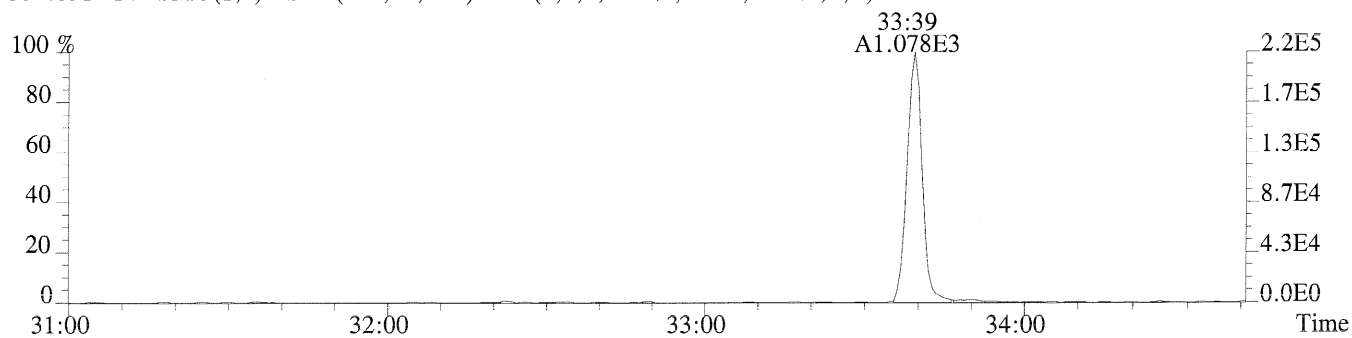
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



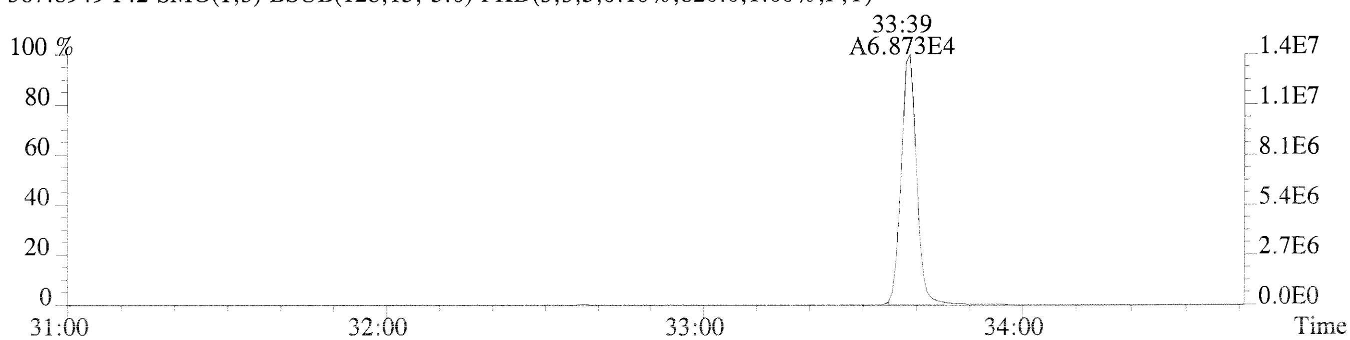
File:P230731 #1-335 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



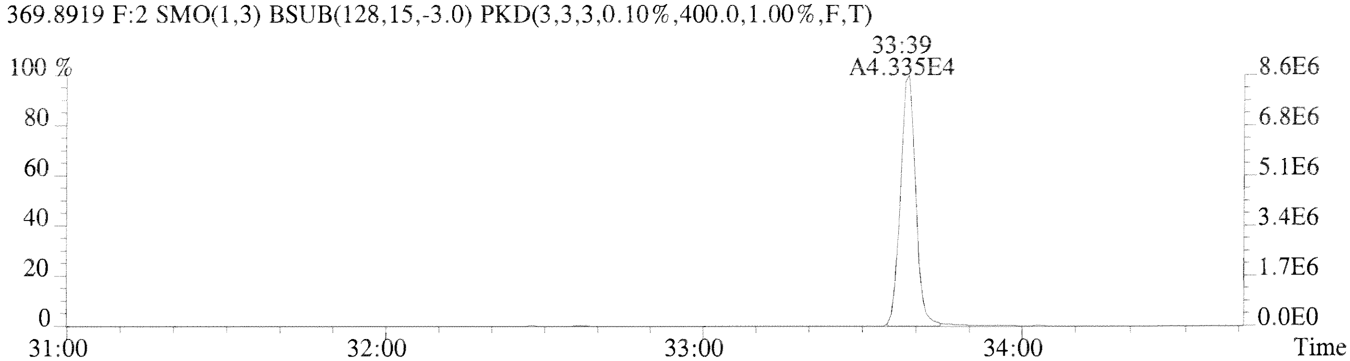
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



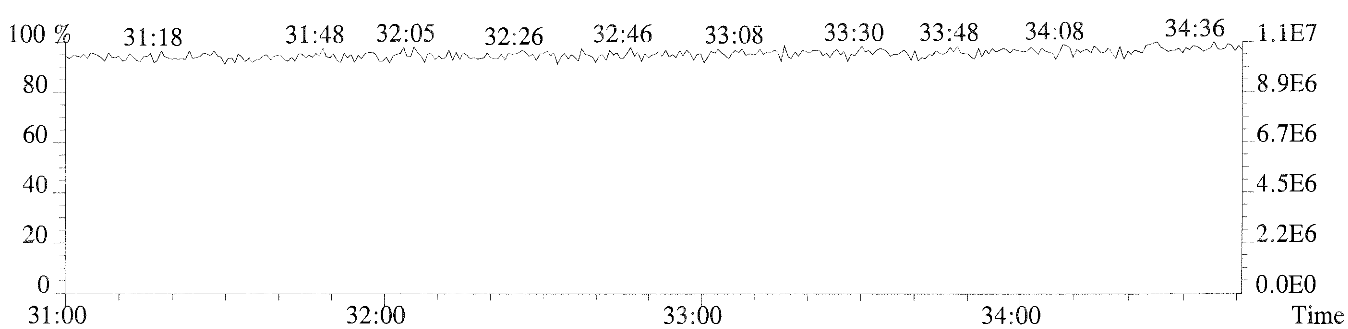
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



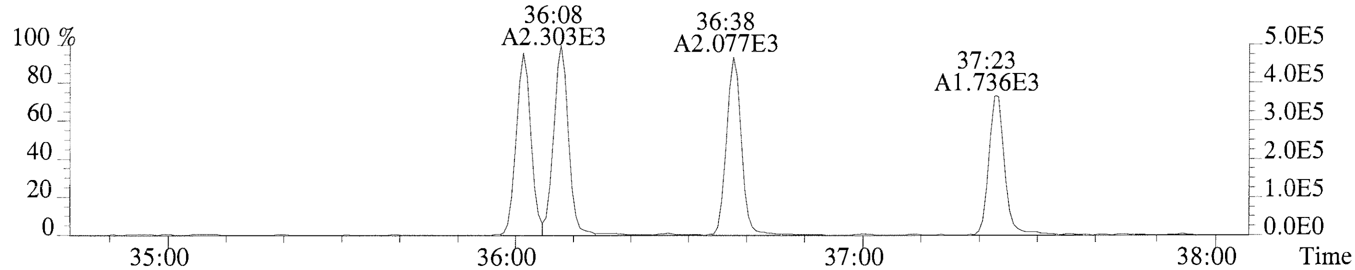
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



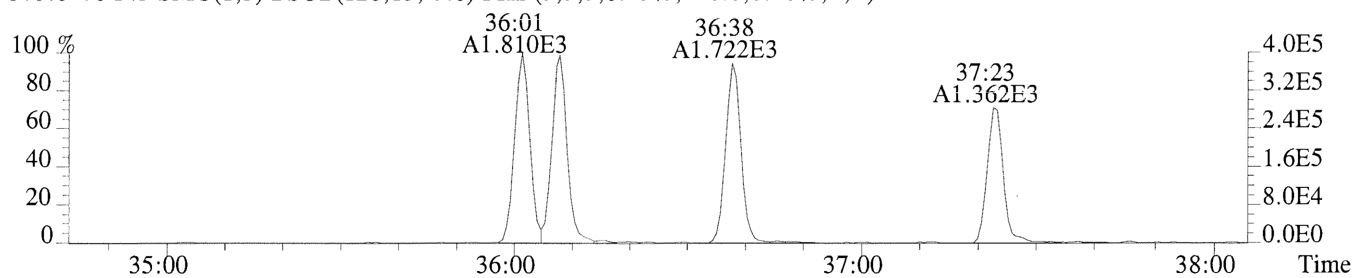
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



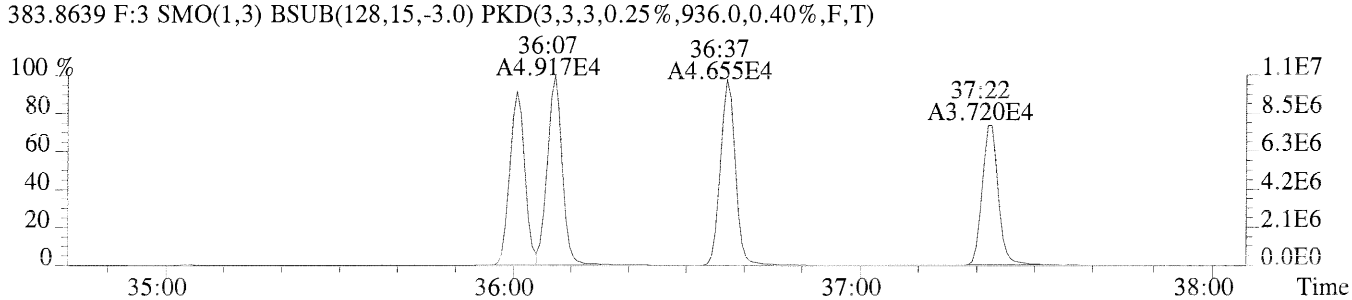
File:P230731 #1-307 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



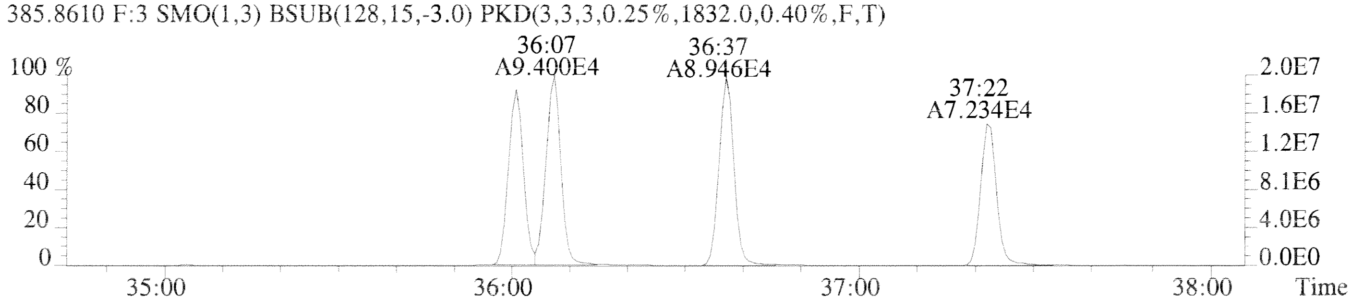
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



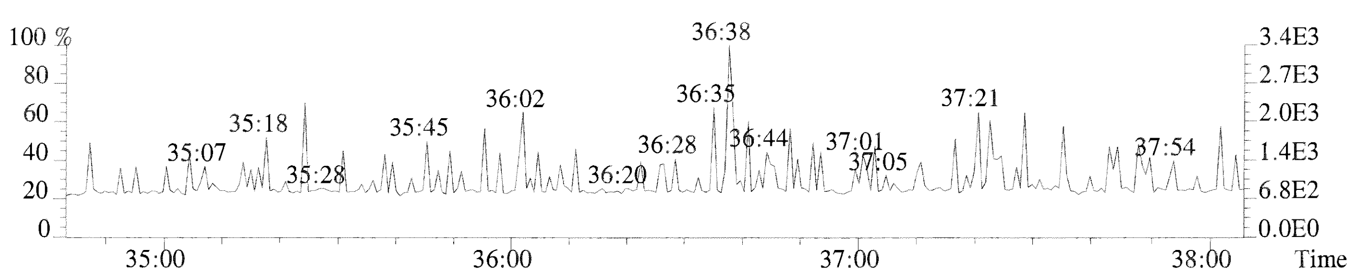
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



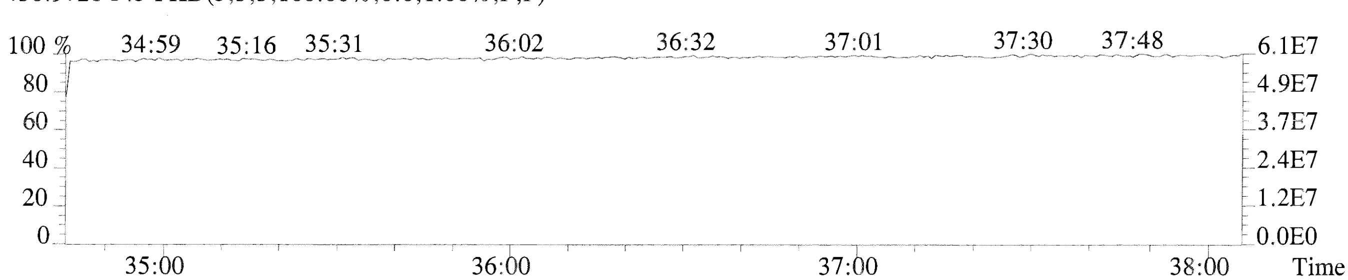
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.40%,F,T)



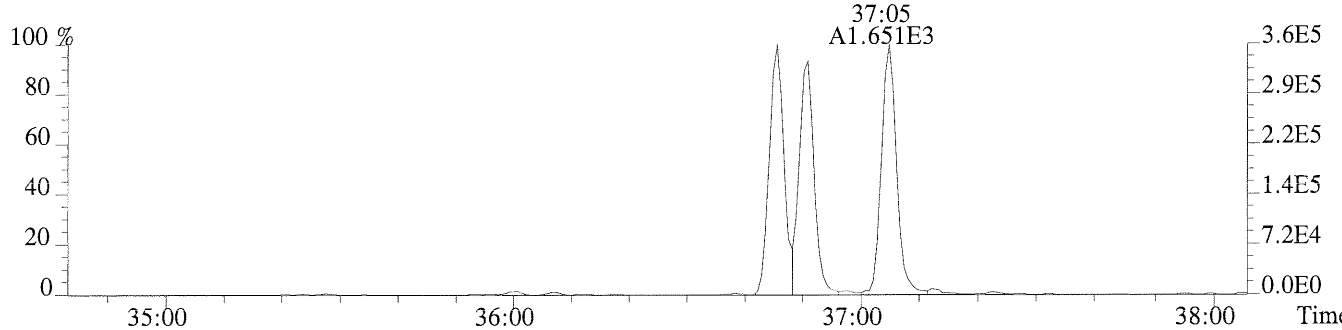
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



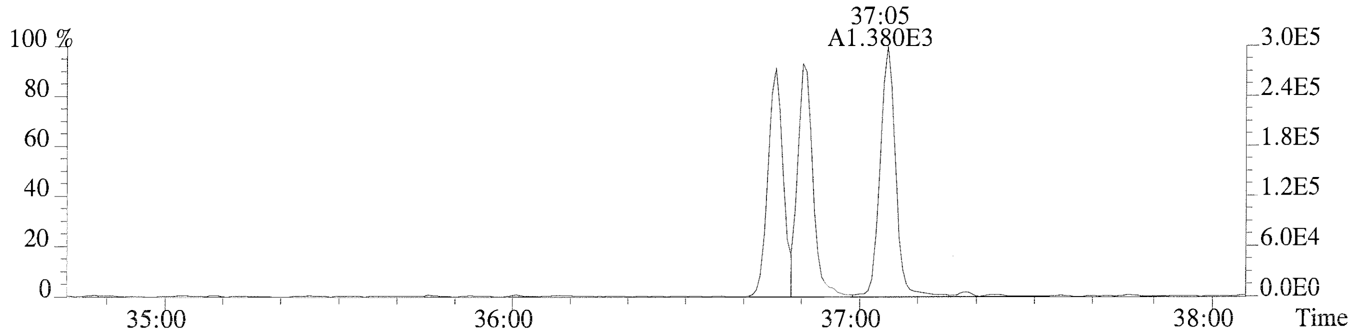
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



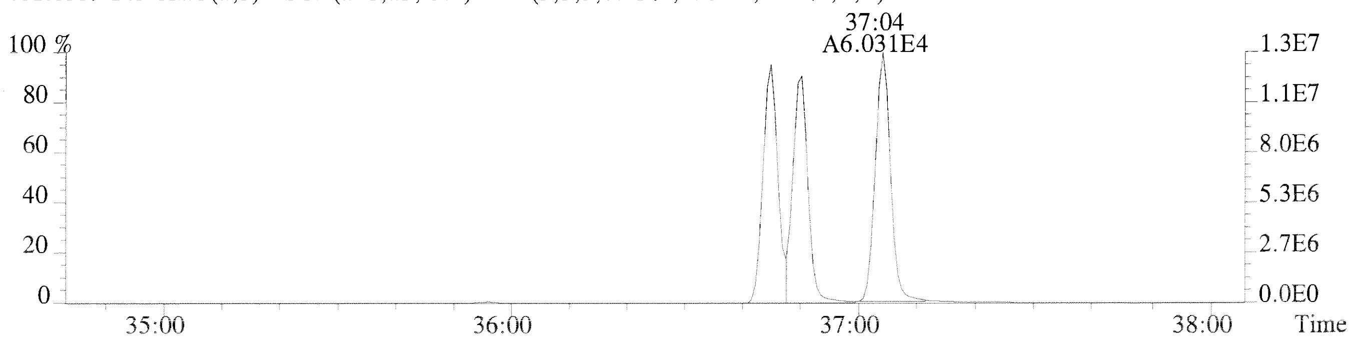
File:P230731 #1-307 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52.0,0.40%,F,T)



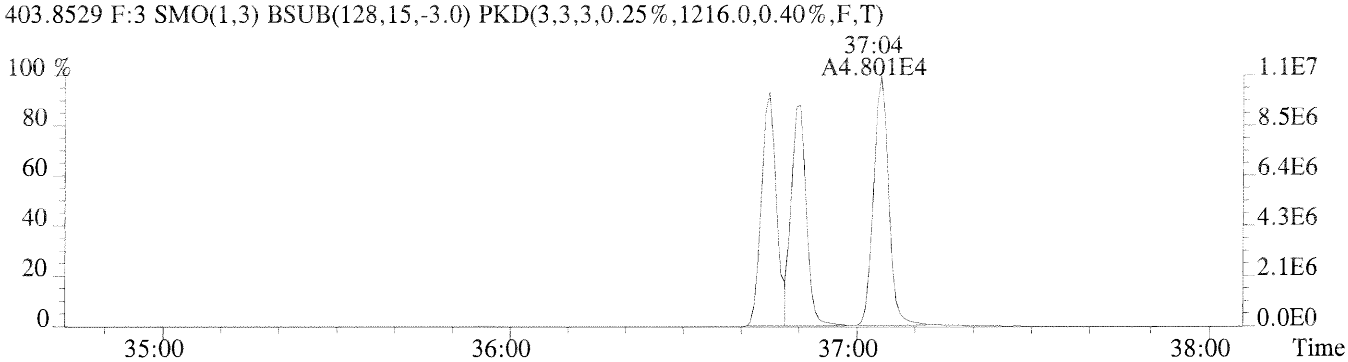
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



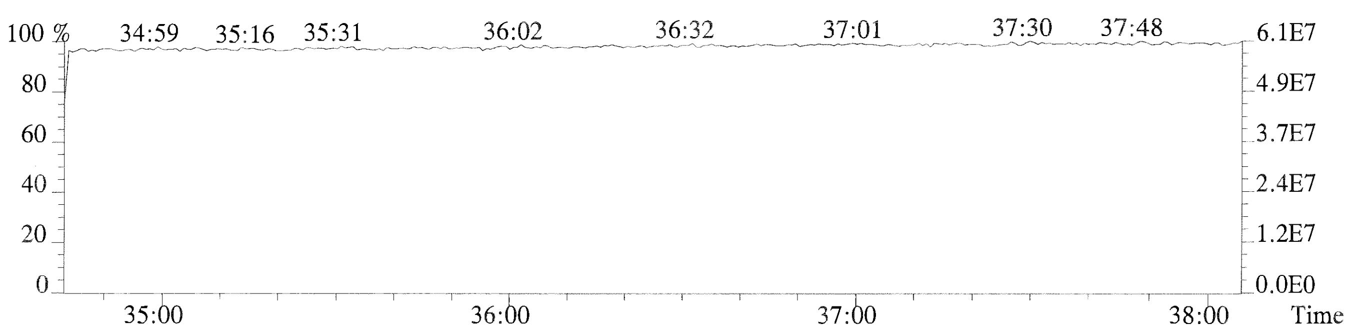
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)

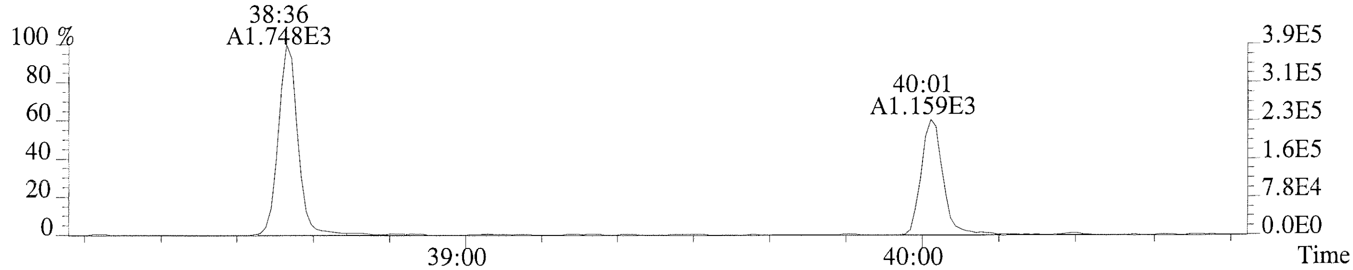


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

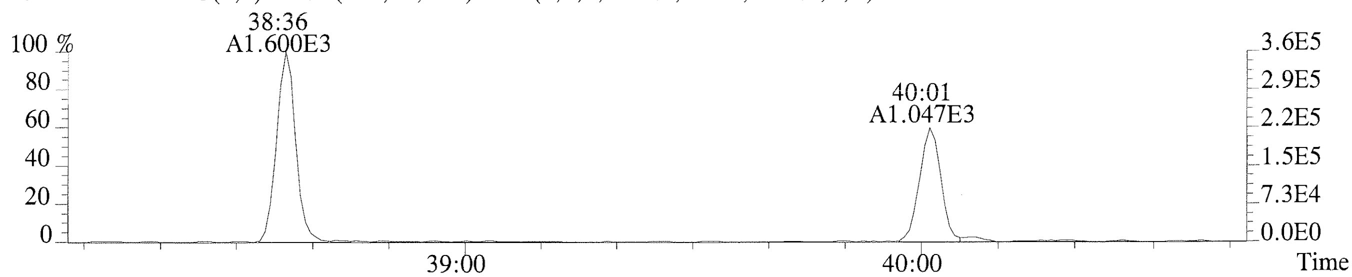


File:P230731 #1-234 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

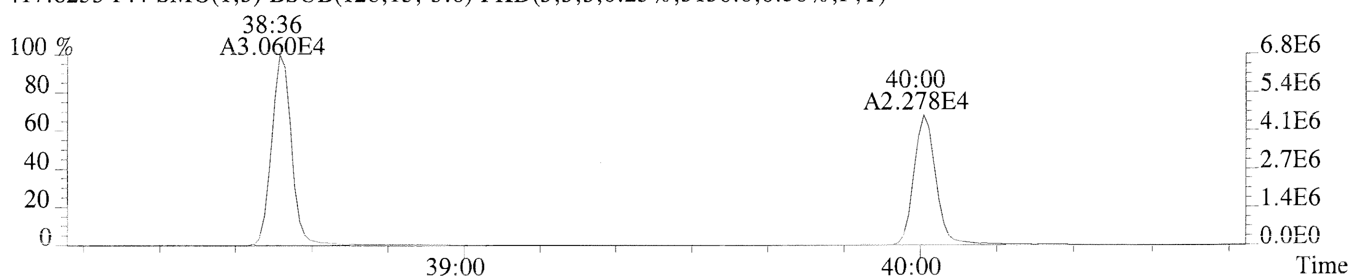
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.50%,F,T)



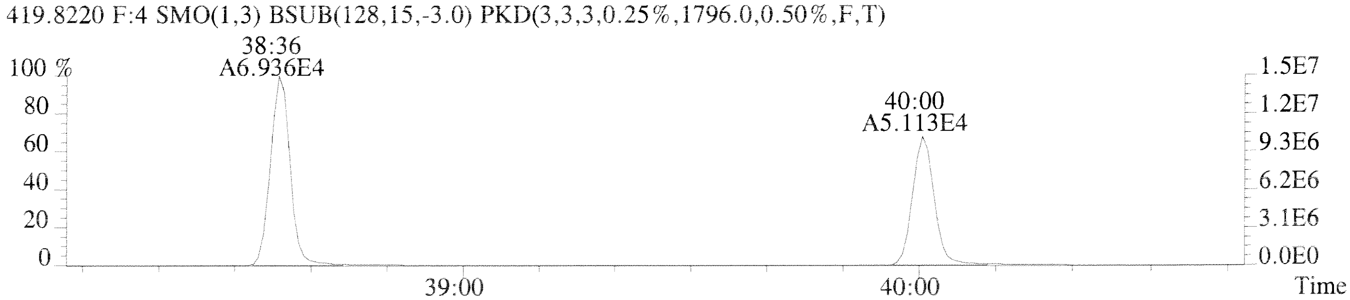
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



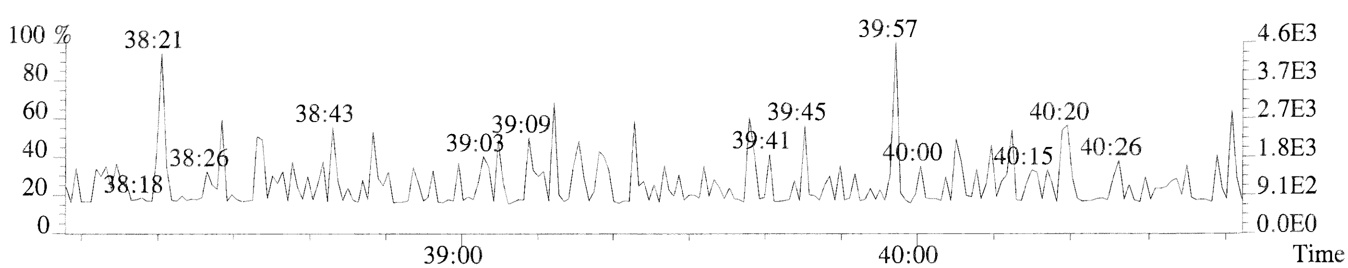
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.50%,F,T)



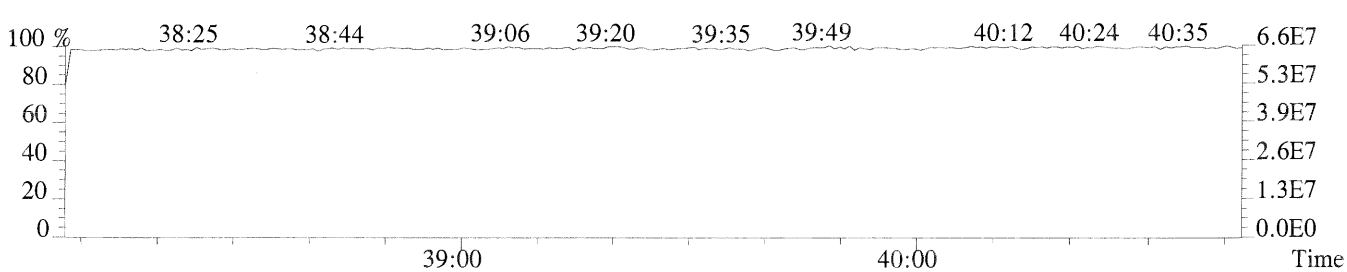
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.50%,F,T)



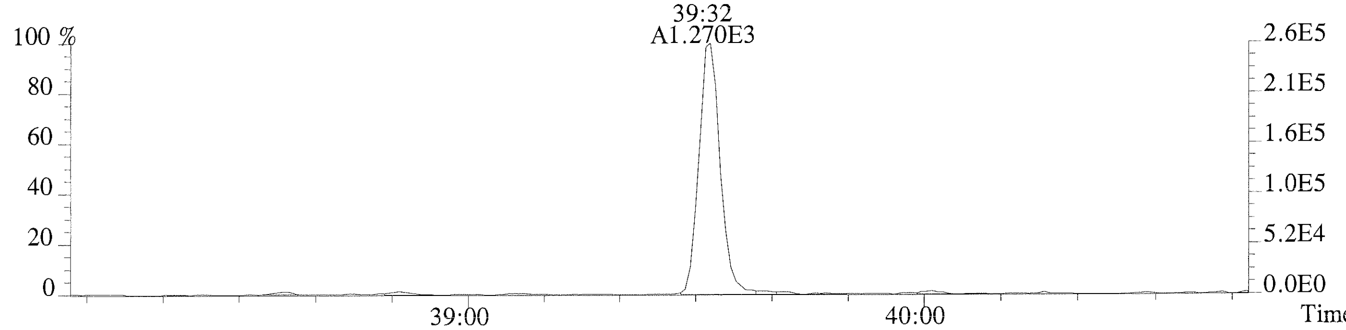
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



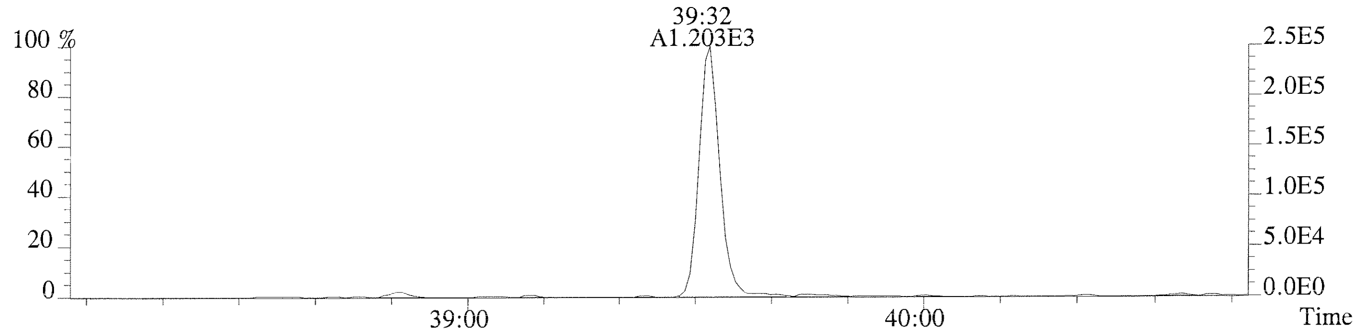
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



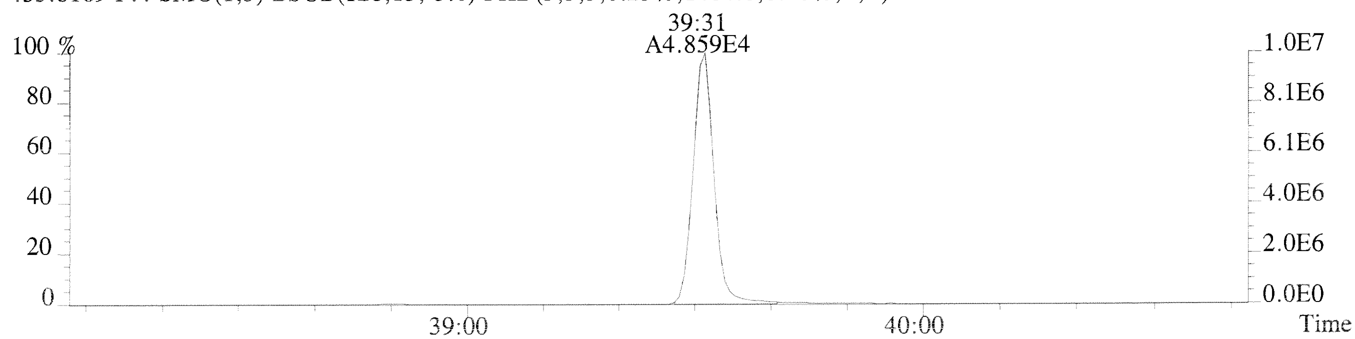
File:P230731 #1-234 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



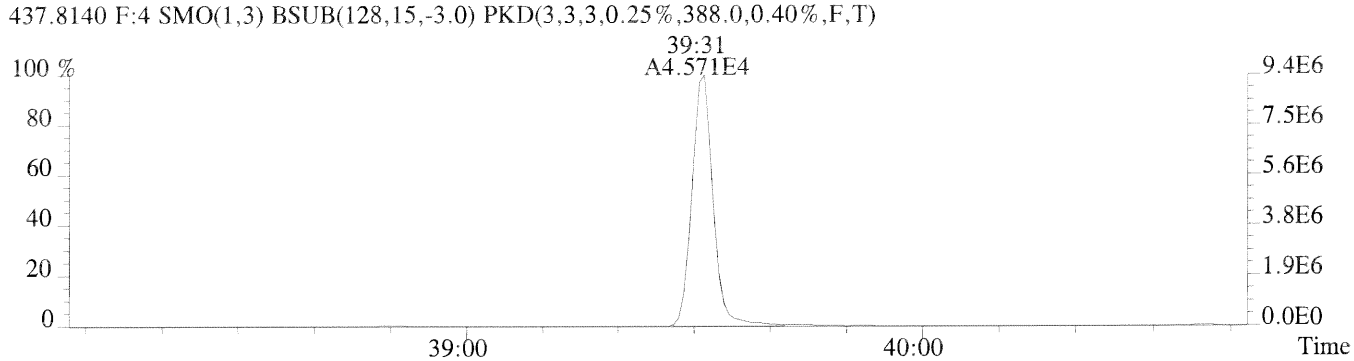
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,92.0,0.40%,F,T)



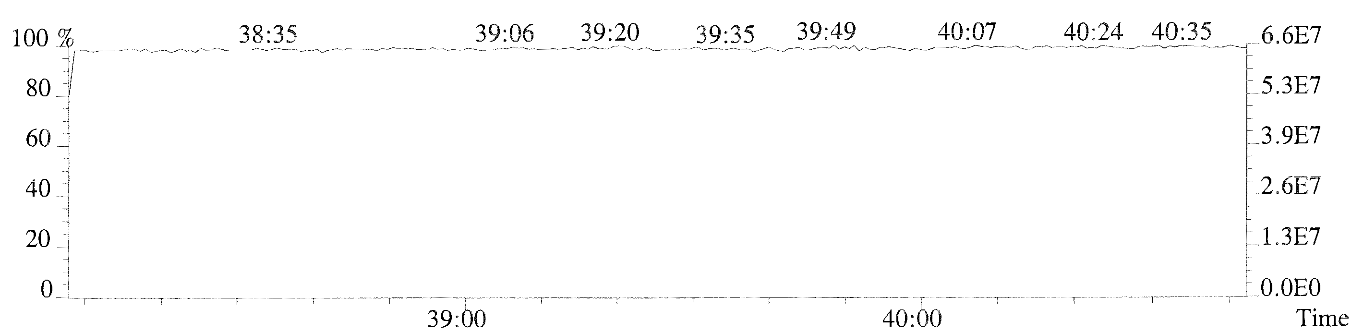
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



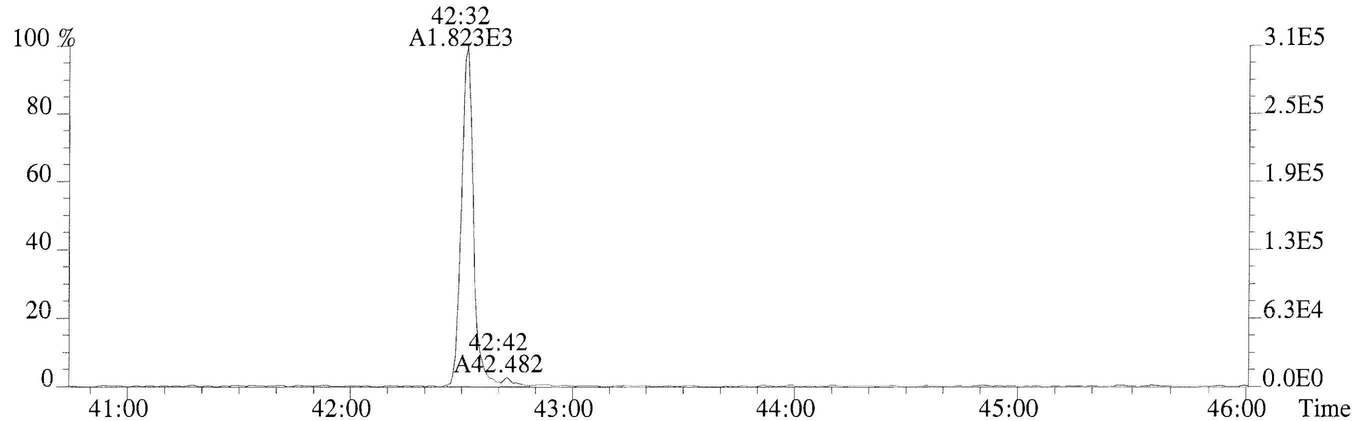
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



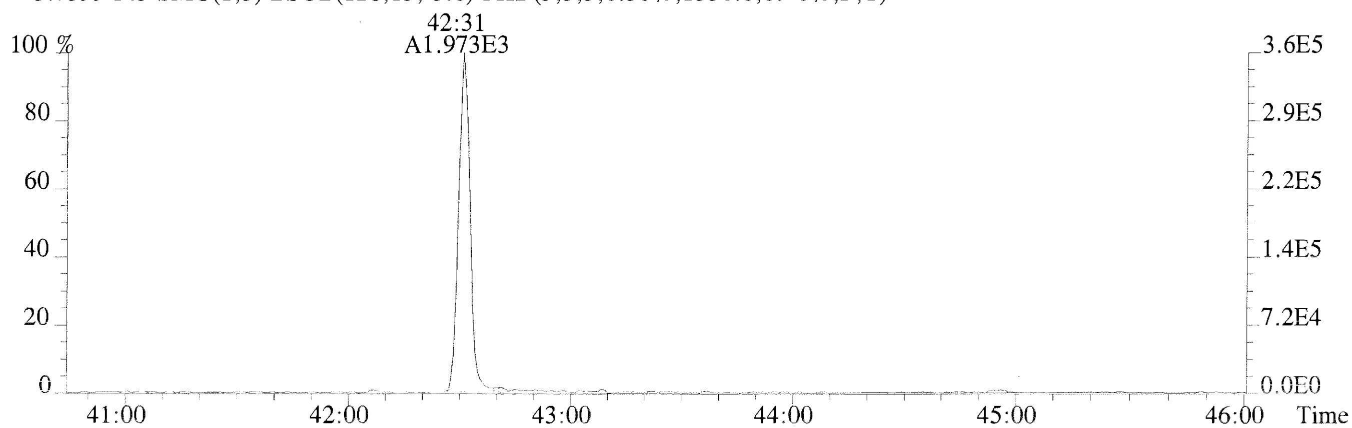
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



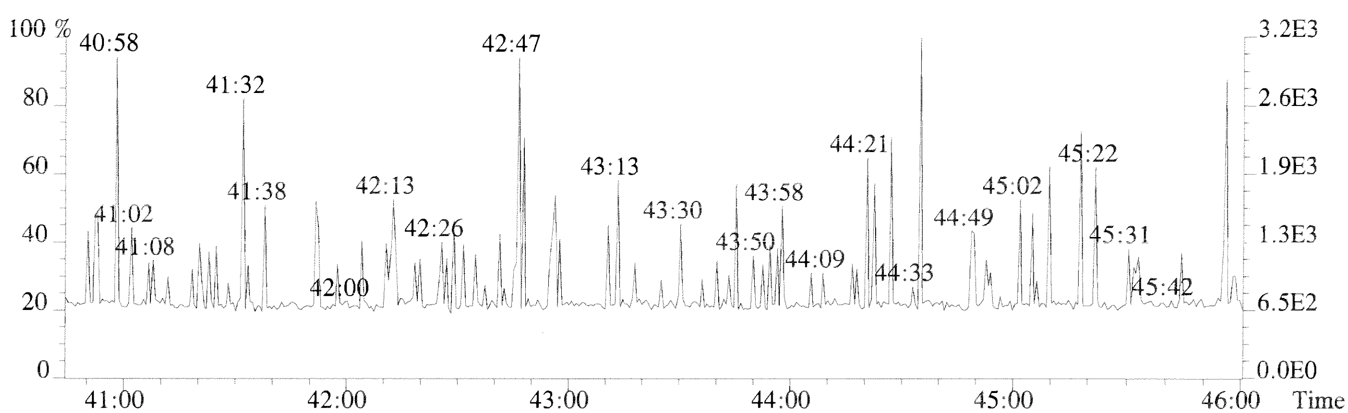
File:P230731 #1-485 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



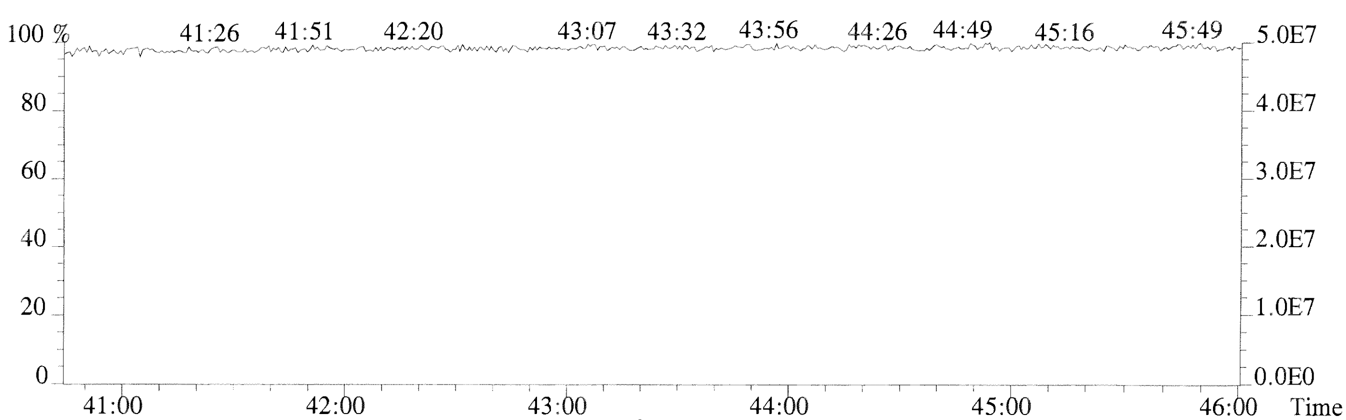
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1336.0,0.40%,F,T)



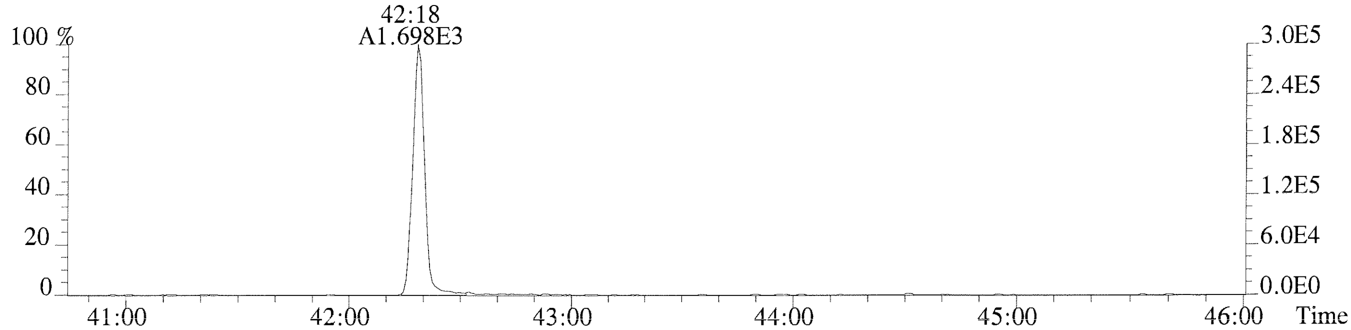
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



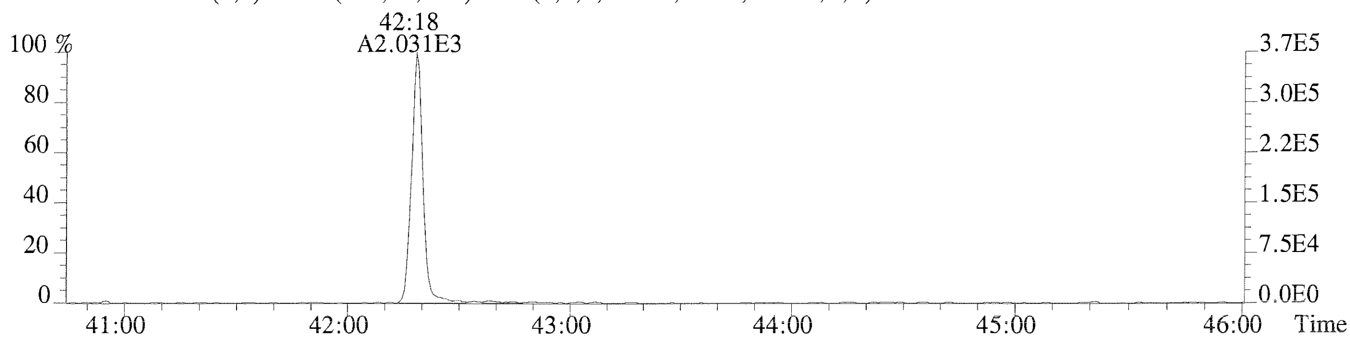
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



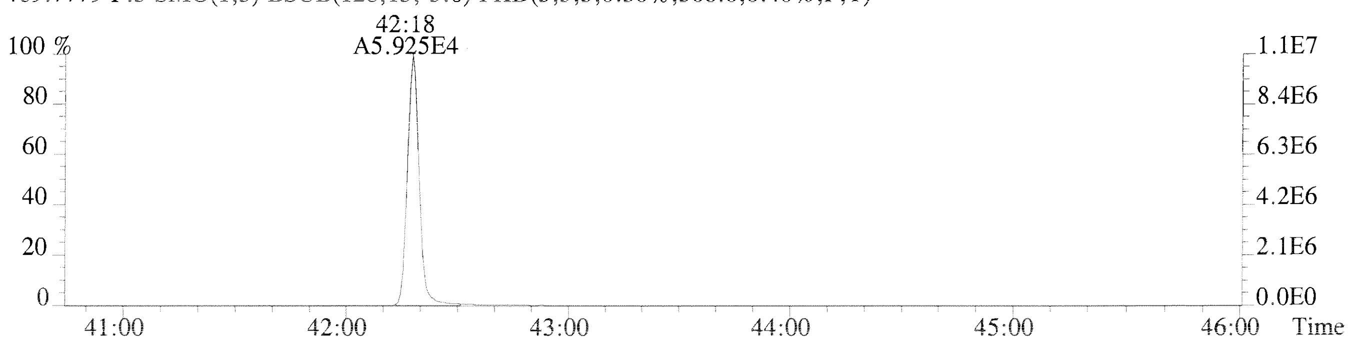
File:P230731 #1-485 Acq:24-AUG-2014 12:10:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,32.0,0.40%,F,T)



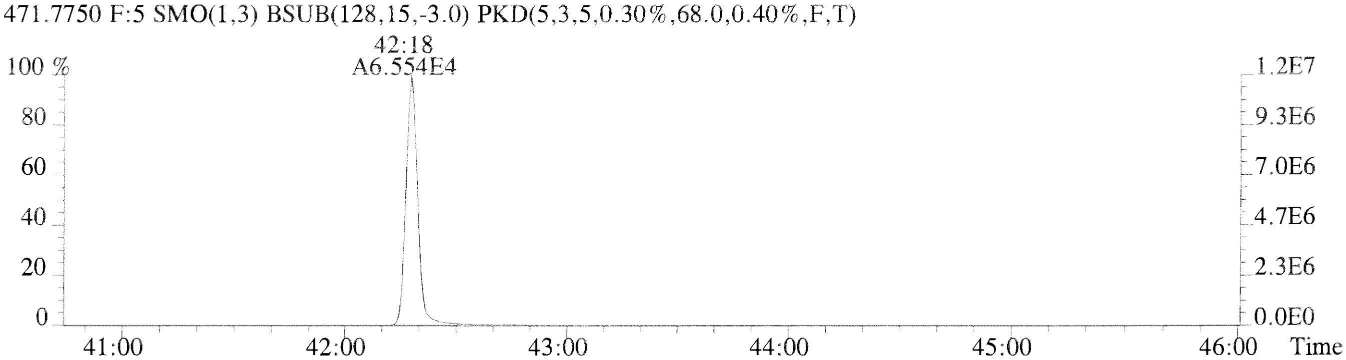
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



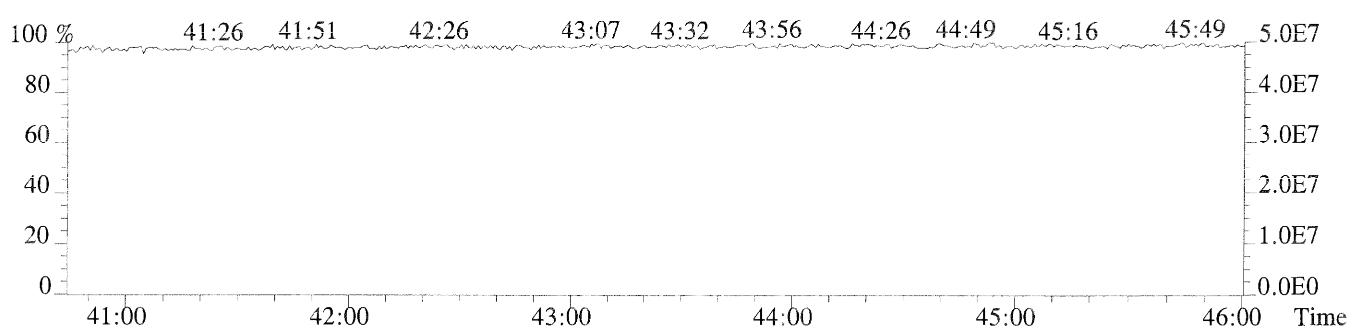
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CS2

Run #3 Filename P230732 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 12:58:46
Processed: 25-AUG-14 11:37:36 LAB. ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:19	1.143e+03	1.461e+03	0.78	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:28	1.102e+04	7.107e+03	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:22	1.027e+04	6.757e+03	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	9.243e+03	7.365e+03	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:07	9.569e+03	7.754e+03	1.23	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	9.106e+03	7.394e+03	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	7.202e+03	5.742e+03	1.25	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	7.298e+03	7.184e+03	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	4.860e+03	4.621e+03	1.05	yes	no	1.000
10	Unk	OCDF	42:31	7.448e+03	8.117e+03	0.92	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:06	8.661e+02	1.101e+03	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	7.404e+03	4.700e+03	1.58	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:45	6.615e+03	5.156e+03	1.28	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:50	6.607e+03	5.324e+03	1.24	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:04	7.122e+03	5.735e+03	1.24	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	5.358e+03	5.051e+03	1.06	yes	no	1.000
17	Unk	OCDD	42:18	7.261e+03	8.136e+03	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:18	6.145e+04	7.683e+04	0.80	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:27	1.095e+05	6.909e+04	1.58	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.091e+05	6.873e+04	1.59	yes	no	1.171
21	IS	13C-1,2,3,4,7,8-HxCDF	36:00	4.655e+04	8.963e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	5.311e+04	1.026e+05	0.52	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	5.002e+04	9.623e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	3.927e+04	7.474e+04	0.53	yes	no	1.009
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	3.204e+04	7.377e+04	0.43	yes	no	1.042
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.291e+04	5.227e+04	0.44	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:04	4.132e+04	5.245e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:38	7.454e+04	4.740e+04	1.57	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:44	6.047e+04	4.787e+04	1.26	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	6.016e+04	4.764e+04	1.26	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	5.060e+04	4.715e+04	1.07	yes	no	1.067
32	IS	13C-OCDD	42:17	6.243e+04	6.862e+04	0.91	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:30	4.152e+04	5.241e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:03	6.427e+04	5.148e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	1.955e+03				no	1.021

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CS2

Run #3 Filename P230732 Samp: 1 Inj: 1 Acquired: 24-AUG-14 12:58:46
Processed: 25-AUG-14 11:37:36 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.26e+05	3.44e+02	6.6e+02	3.02e+05	2.34e+03	1.3e+02
2	1,2,3,7,8-PeCDF	2.08e+06	1.24e+02	1.7e+04	1.35e+06	1.36e+03	9.9e+02
3	2,3,4,7,8-PeCDF	2.03e+06	1.24e+02	1.6e+04	1.31e+06	1.36e+03	9.6e+02
4	1,2,3,4,7,8-HxCDF	2.05e+06	8.84e+02	2.3e+03	1.61e+06	6.40e+01	2.5e+04
5	1,2,3,6,7,8-HxCDF	2.06e+06	8.84e+02	2.3e+03	1.68e+06	6.40e+01	2.6e+04
6	2,3,4,6,7,8-HxCDF	2.00e+06	8.84e+02	2.3e+03	1.57e+06	6.40e+01	2.4e+04
7	1,2,3,7,8,9-HxCDF	1.51e+06	8.84e+02	1.7e+03	1.25e+06	6.40e+01	1.9e+04
8	1,2,3,4,6,7,8-HpCDF	1.56e+06	1.20e+03	1.3e+03	1.60e+06	1.45e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	9.91e+05	1.20e+03	8.3e+02	9.22e+05	1.45e+03	6.4e+02
10	OCDF	1.32e+06	4.60e+02	2.9e+03	1.39e+06	1.54e+03	9.0e+02
11	2,3,7,8-TCDD	1.86e+05	5.72e+02	3.3e+02	2.29e+05	7.96e+02	2.9e+02
12	1,2,3,7,8-PeCDD	1.49e+06	1.46e+03	1.0e+03	9.64e+05	8.40e+01	1.1e+04
13	1,2,3,4,7,8-HxCDD	1.54e+06	5.08e+02	3.0e+03	1.18e+06	4.20e+02	2.8e+03
14	1,2,3,6,7,8-HxCDD	1.46e+06	5.08e+02	2.9e+03	1.18e+06	4.20e+02	2.8e+03
15	1,2,3,7,8,9-HxCDD	1.53e+06	5.08e+02	3.0e+03	1.26e+06	4.20e+02	3.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.16e+06	5.04e+02	2.3e+03	1.09e+06	6.80e+01	1.6e+04
17	OCDD	1.29e+06	6.40e+01	2.0e+04	1.43e+06	5.32e+02	2.7e+03
18	13C-2,3,7,8-TCDF	1.27e+07	1.65e+03	7.7e+03	1.58e+07	1.36e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	2.10e+07	4.92e+02	4.3e+04	1.32e+07	4.80e+02	2.7e+04
20	13C-2,3,4,7,8-PeCDF	2.18e+07	4.92e+02	4.4e+04	1.38e+07	4.80e+02	2.9e+04
21	13C-1,2,3,4,7,8-HxCDF	1.02e+07	7.24e+02	1.4e+04	1.99e+07	6.48e+02	3.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.13e+07	7.24e+02	1.6e+04	2.19e+07	6.48e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.07e+07	7.24e+02	1.5e+04	2.06e+07	6.48e+02	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	8.31e+06	7.24e+02	1.1e+04	1.59e+07	6.48e+02	2.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.13e+06	3.86e+03	1.9e+03	1.59e+07	8.50e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.61e+06	3.86e+03	1.2e+03	1.06e+07	8.50e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.76e+06	4.44e+03	2.0e+03	1.11e+07	1.90e+03	5.9e+03
28	13C-1,2,3,7,8-PeCDD	1.51e+07	6.88e+02	2.2e+04	9.58e+06	5.88e+02	1.6e+04
29	13C-1,2,3,4,7,8-HxCDD	1.41e+07	1.39e+03	1.0e+04	1.11e+07	1.10e+03	1.0e+04
30	13C-1,2,3,6,7,8-HxCDD	1.31e+07	1.39e+03	9.4e+03	1.04e+07	1.10e+03	9.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.09e+07	1.38e+03	7.9e+03	1.01e+07	1.06e+03	9.5e+03
32	13C-OCDD	1.10e+07	5.08e+02	2.2e+04	1.23e+07	6.08e+02	2.0e+04
33	13C-1,2,3,4-TCDD	8.65e+06	4.44e+03	1.9e+03	1.10e+07	1.90e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.42e+07	1.39e+03	1.0e+04	1.14e+07	1.10e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.27e+05	1.34e+03	3.2e+02			

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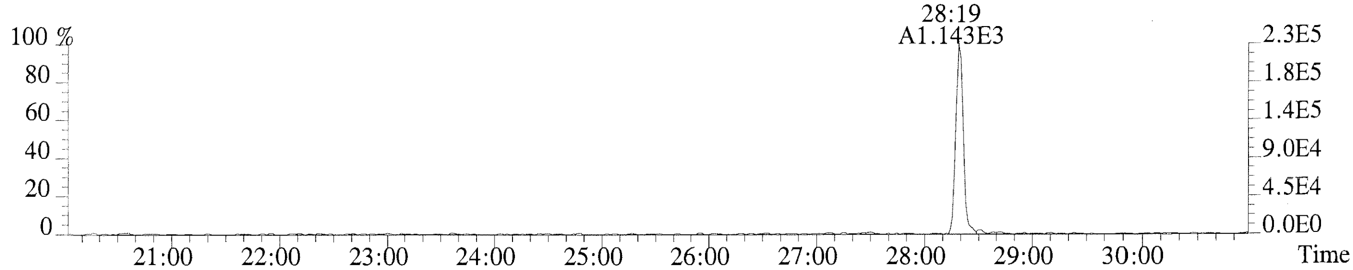
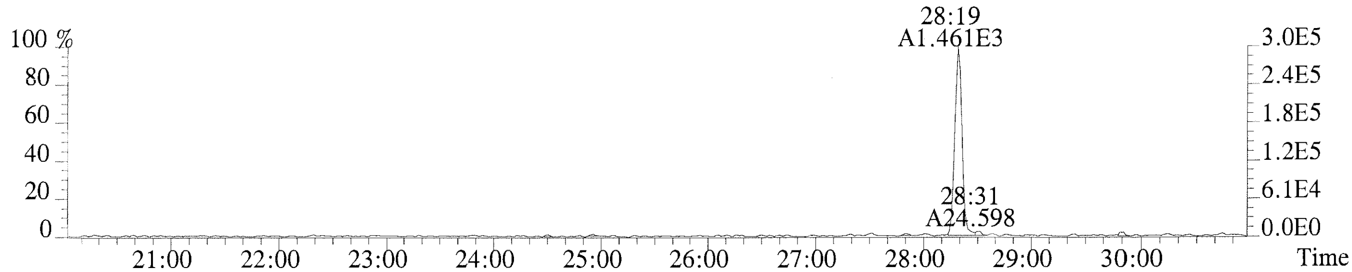
XLSN

File:P230732 #1-687 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

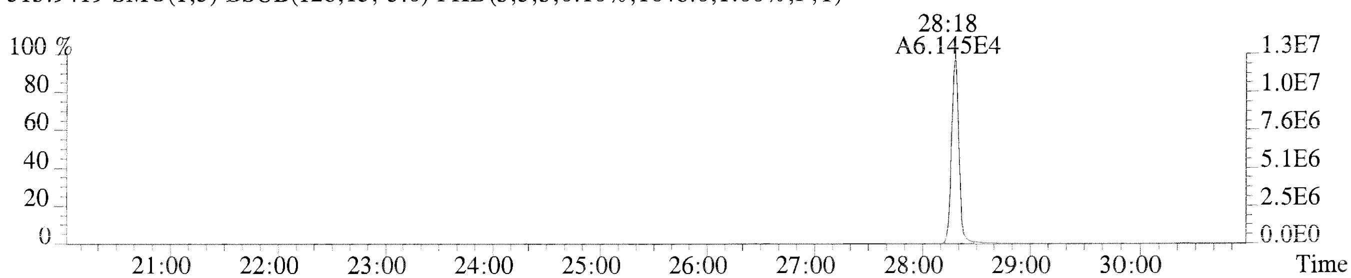
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



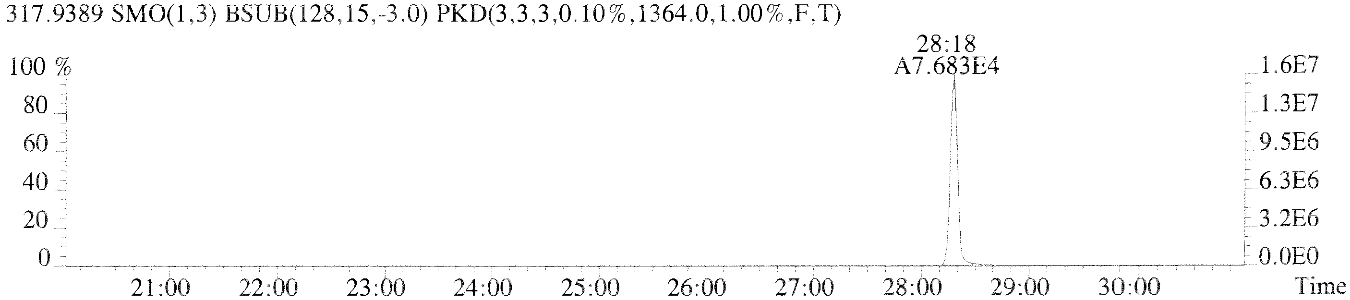
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



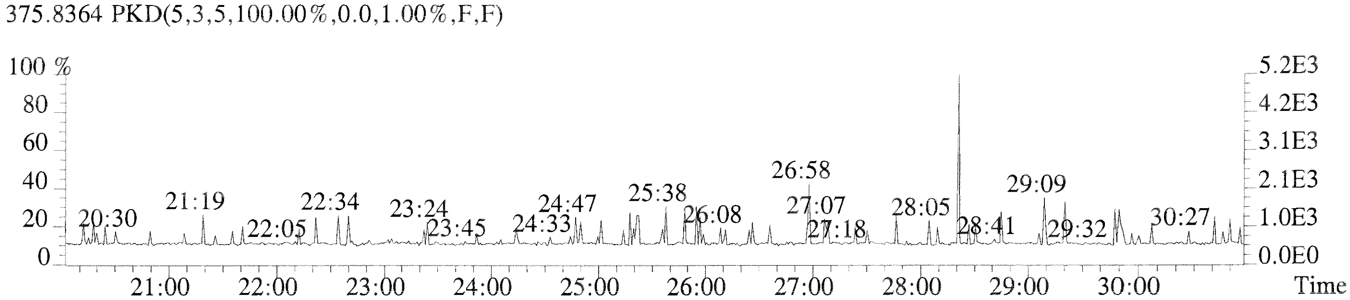
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



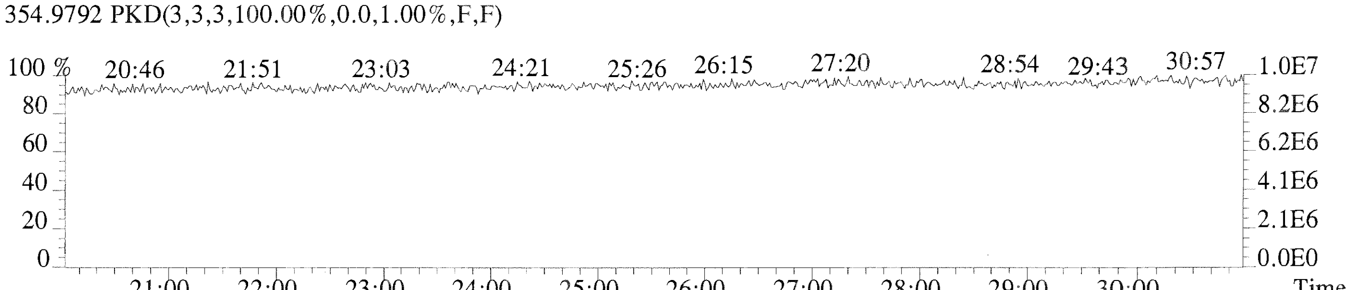
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

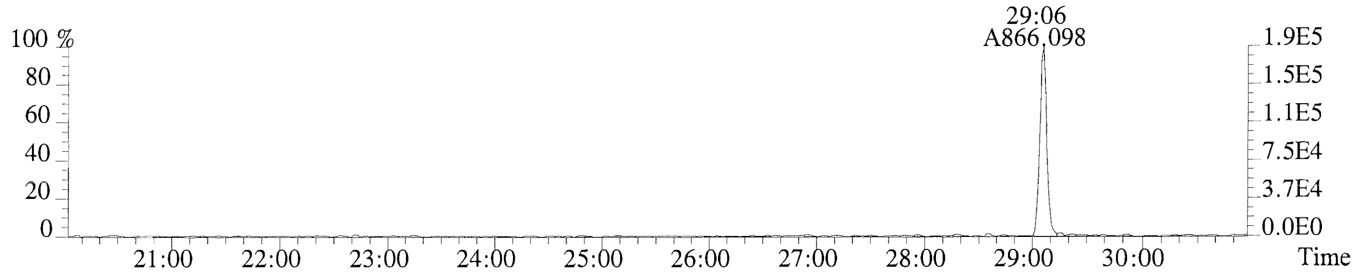


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

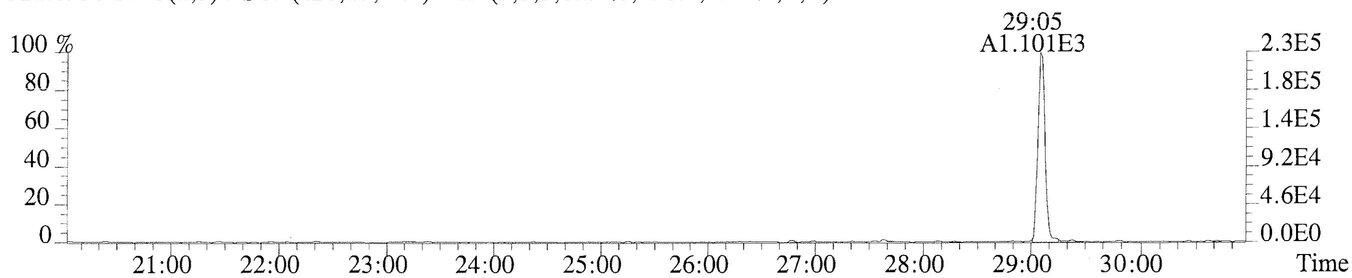


File:P230732 #1-687 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

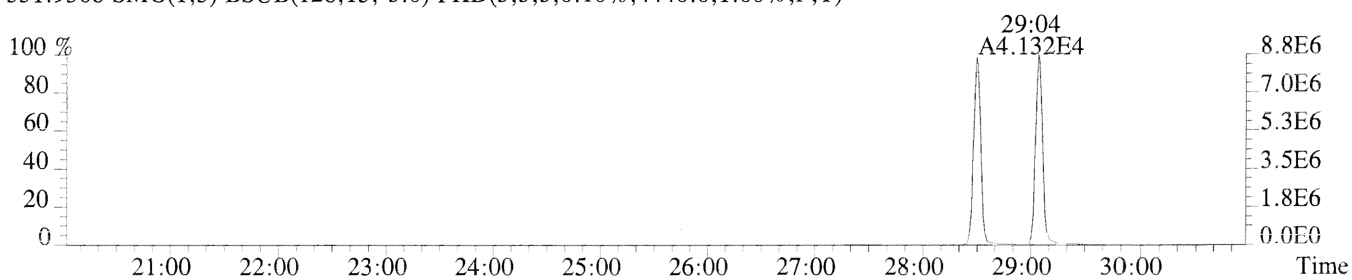
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



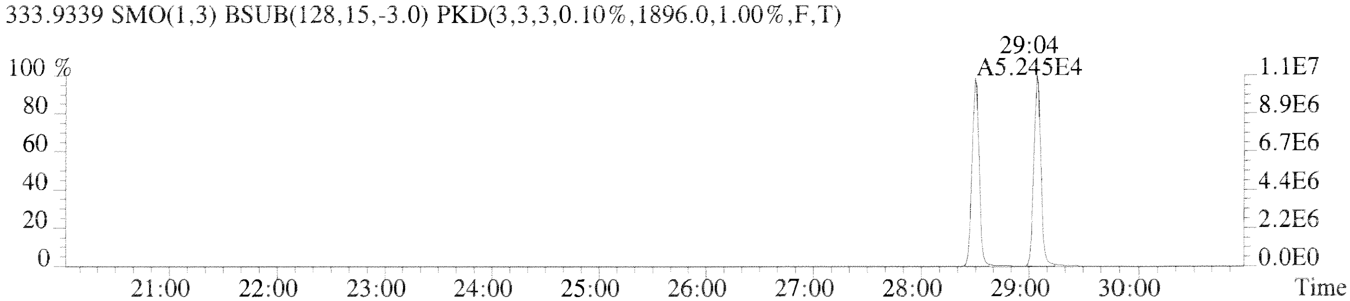
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



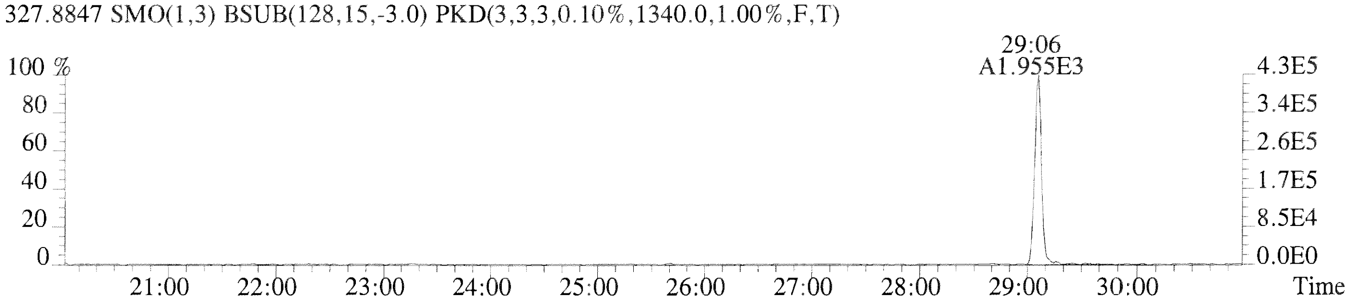
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4440.0,1.00%,F,T)



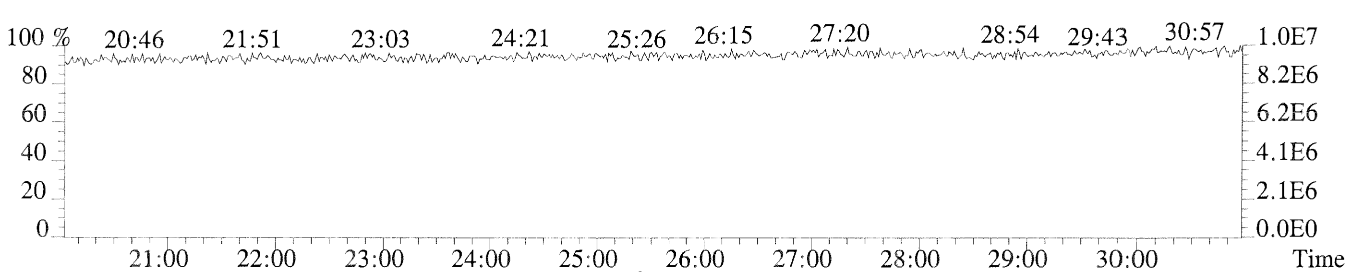
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)

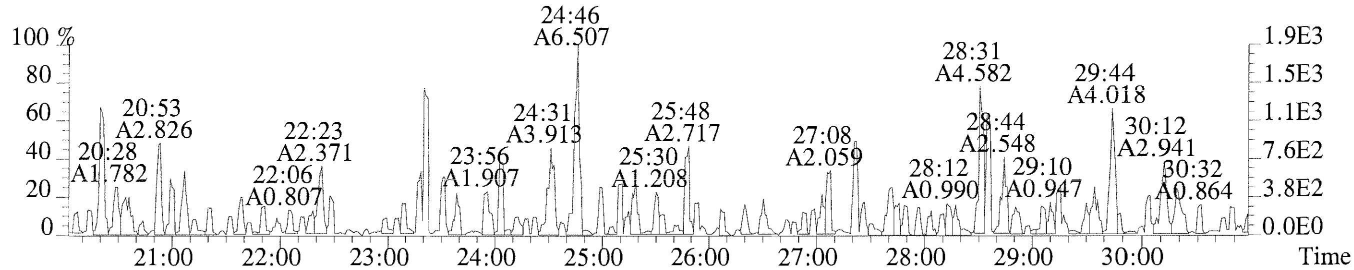


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

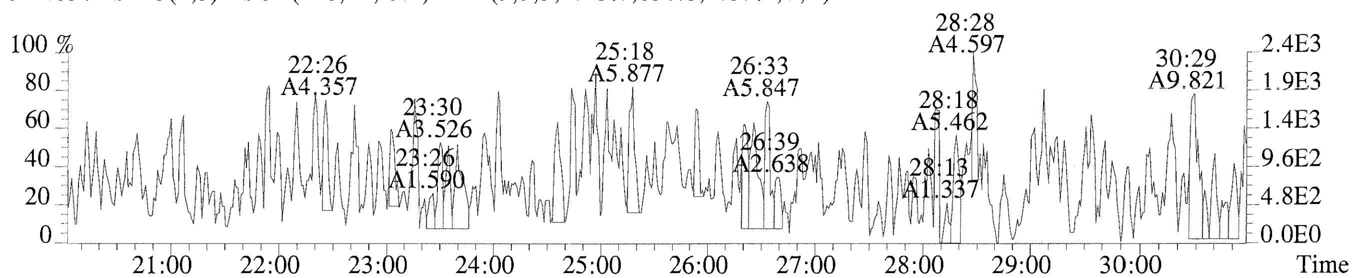


File:P230732 #1-687 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

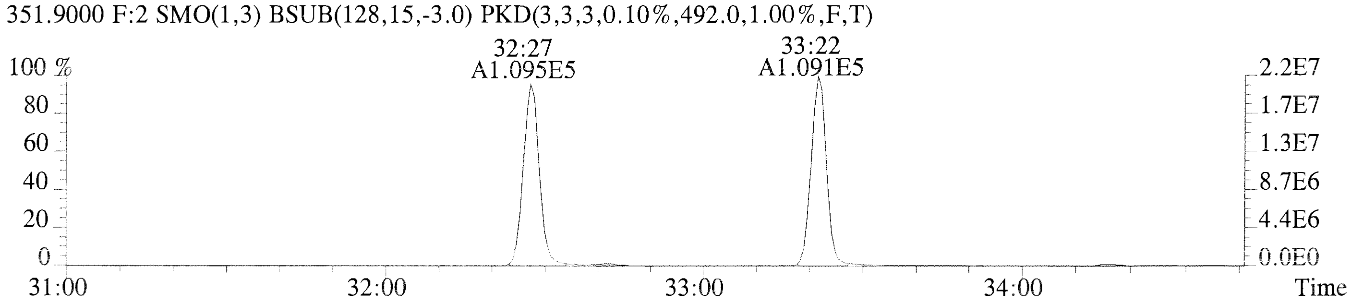
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,48.0,1.00%,F,T)



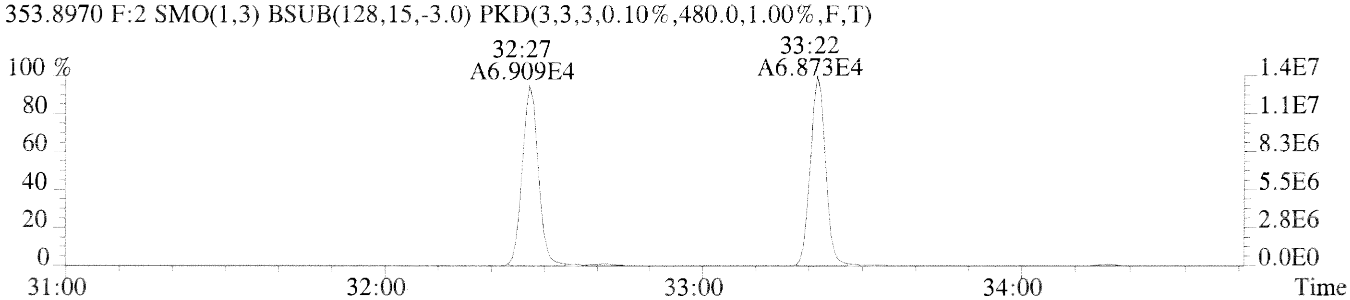
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



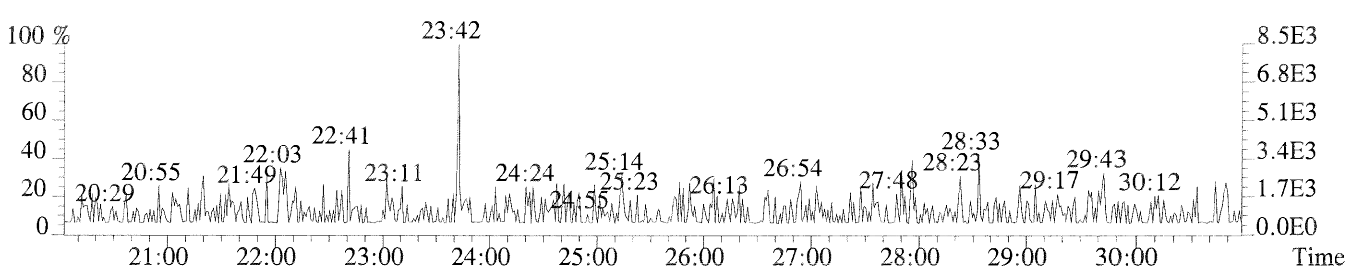
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



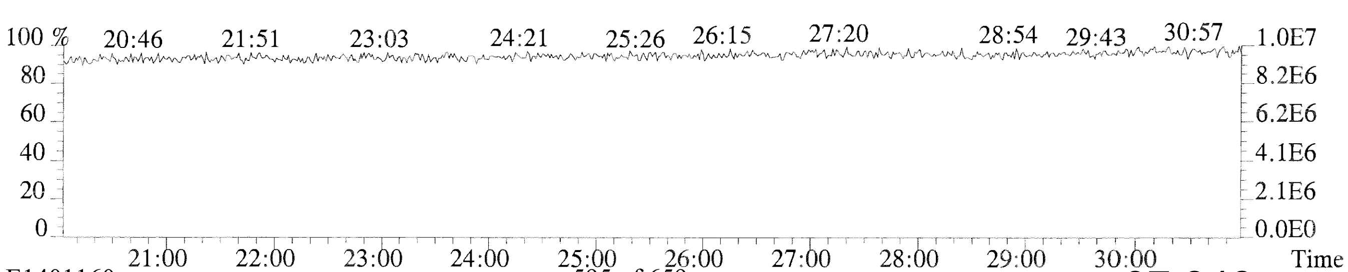
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

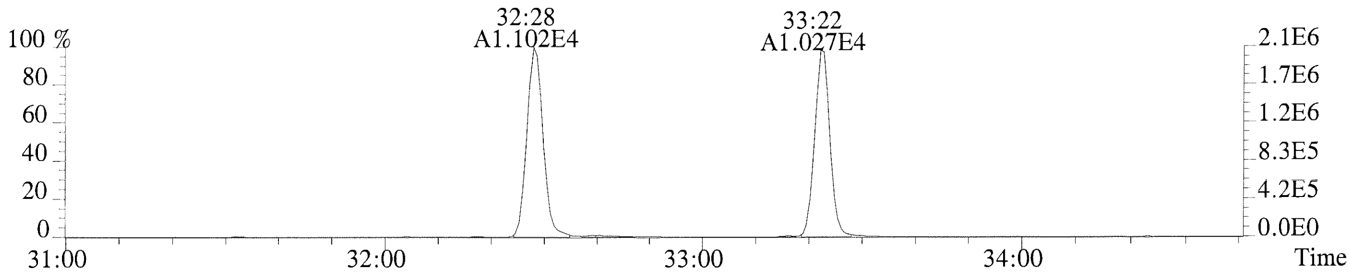


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

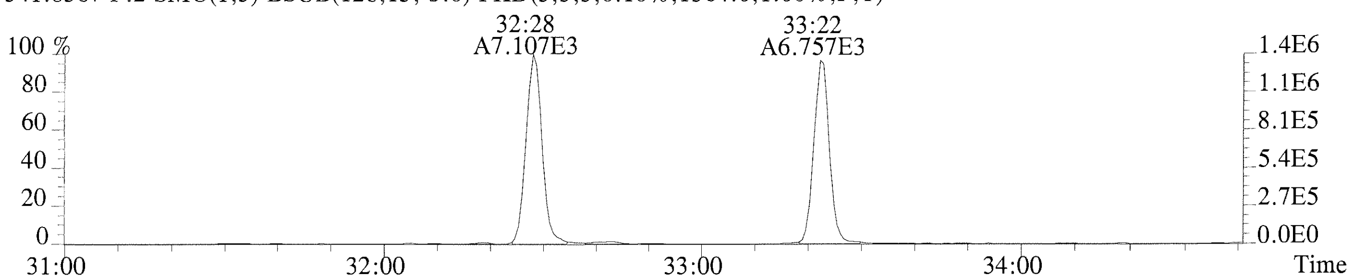


File:P230732 #1-335 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

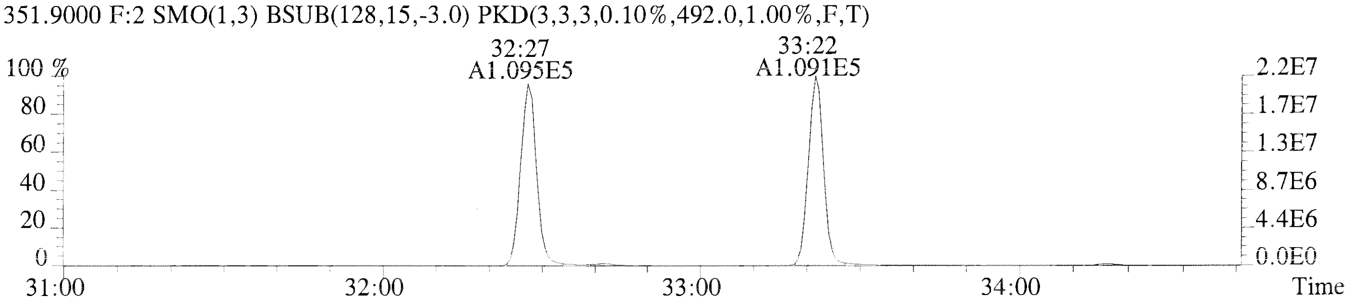
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,124.0,1.00%,F,T)



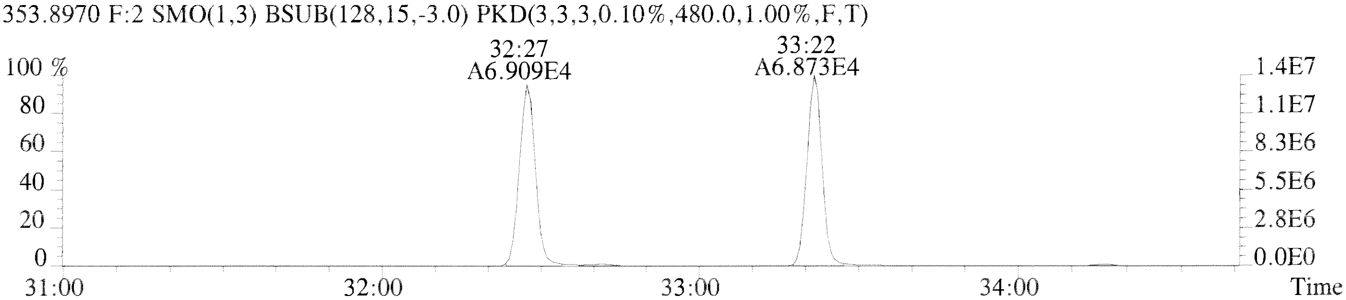
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



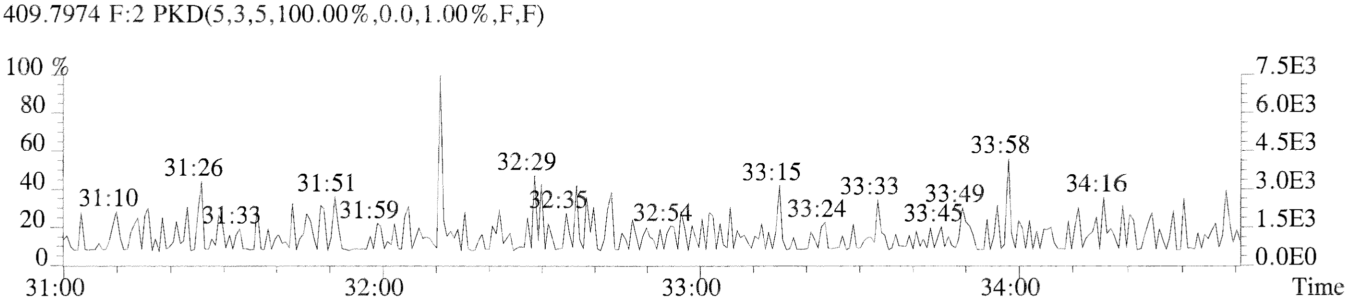
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



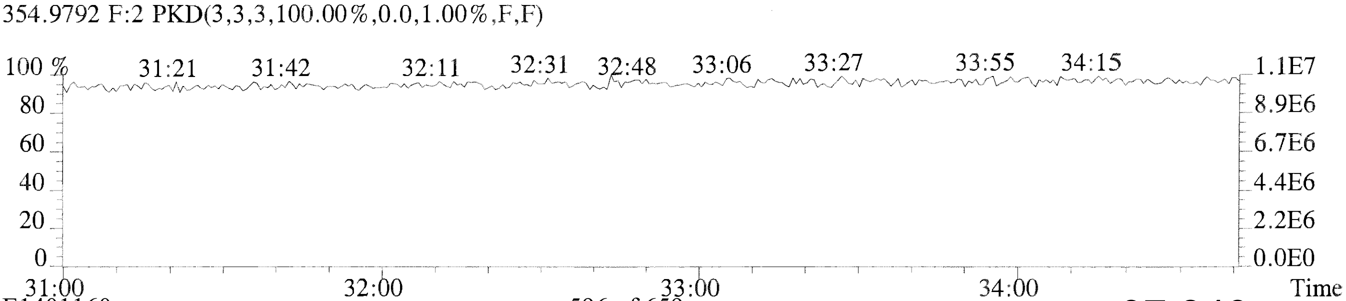
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



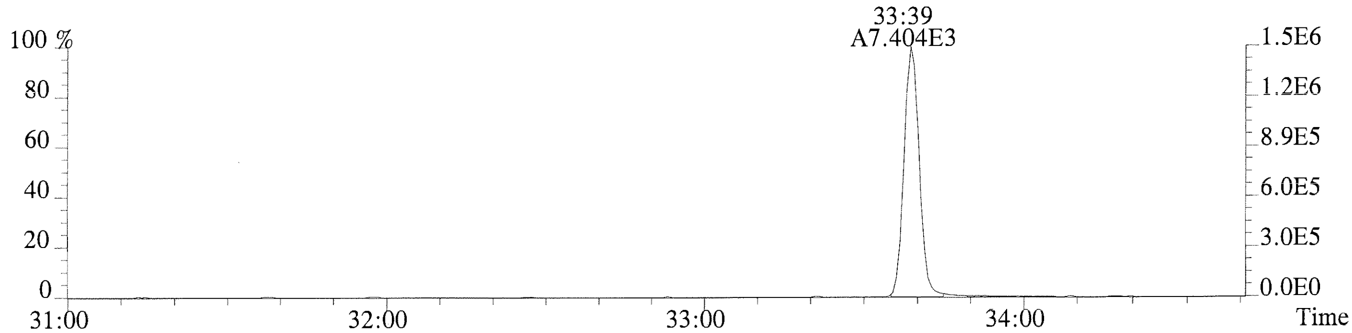
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



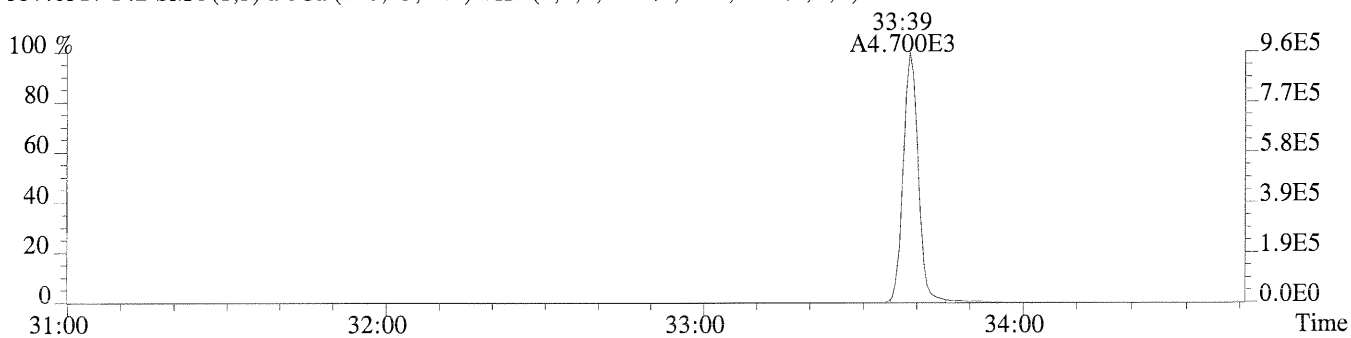
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



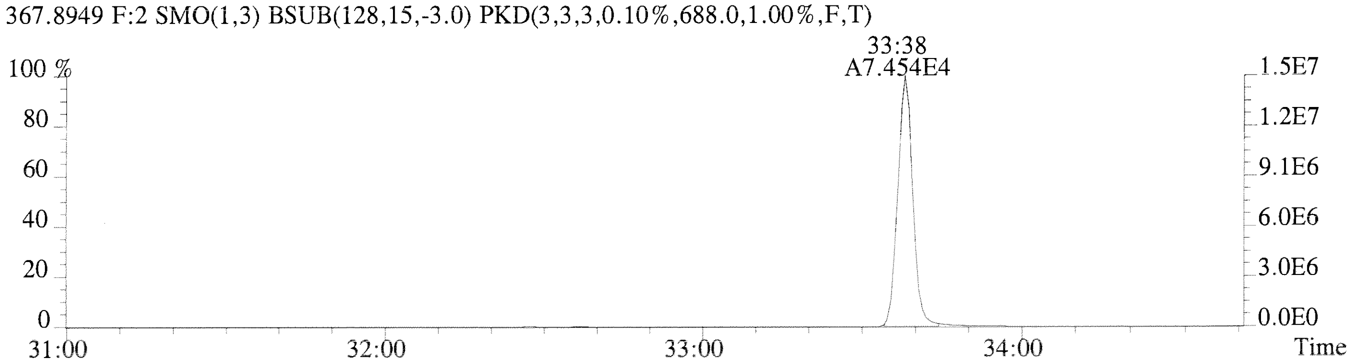
File:P230732 #1-335 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



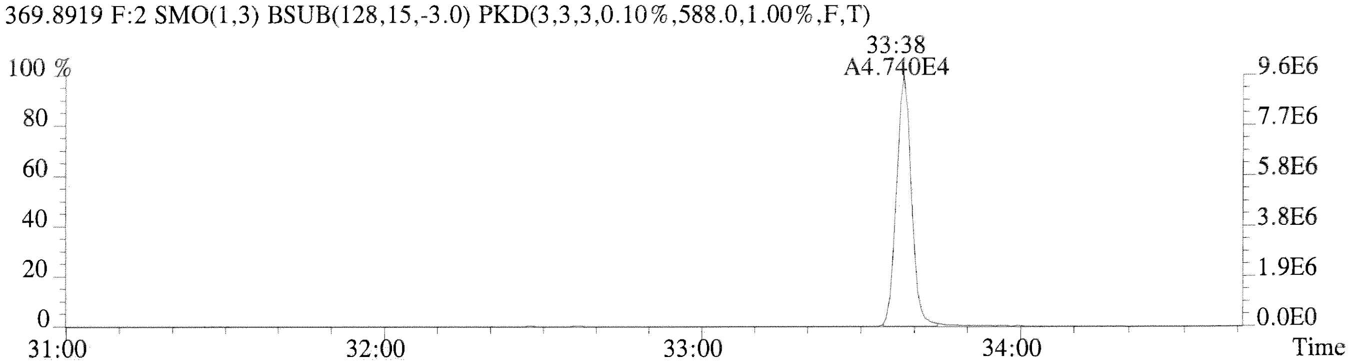
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,84.0,1.00%,F,T)



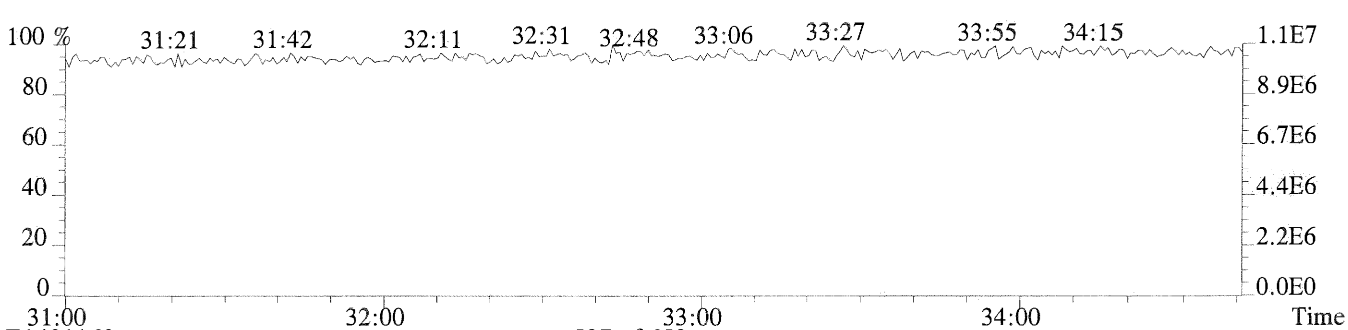
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



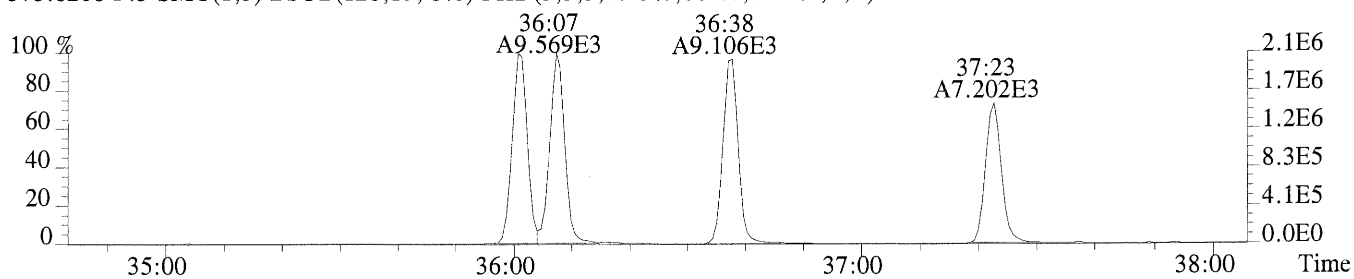
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



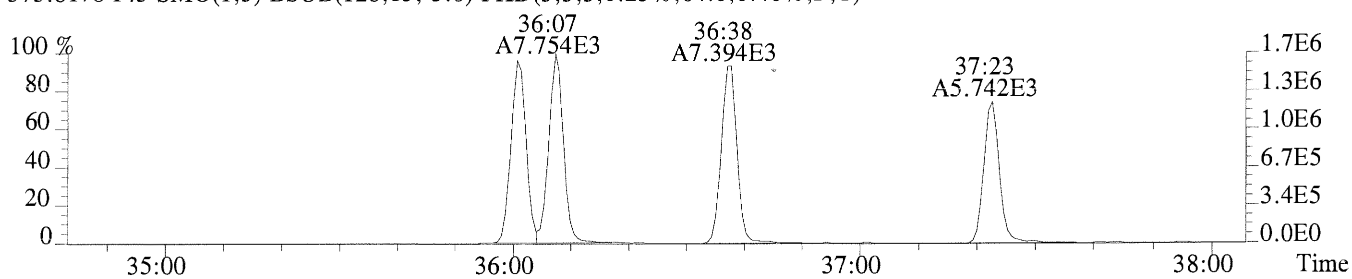
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



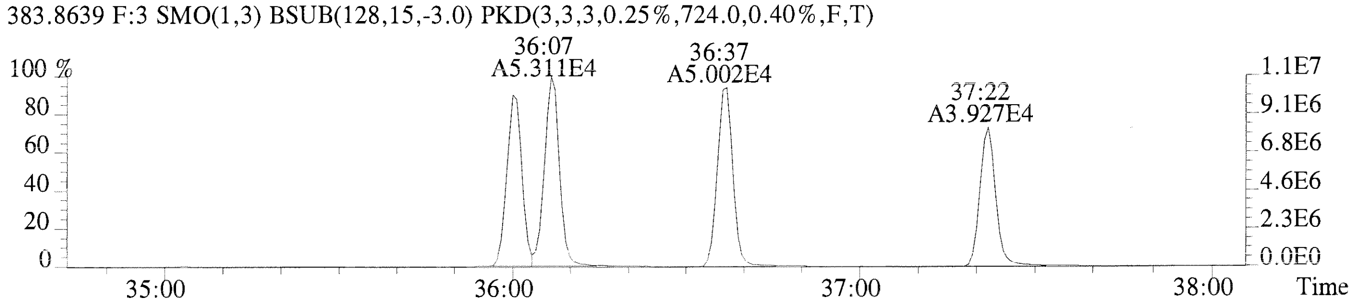
File:P230732 #1-307 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



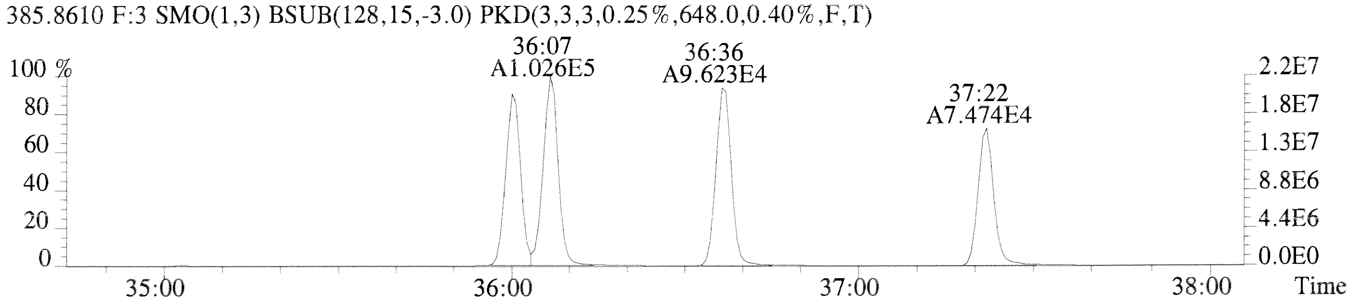
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,64.0,0.40%,F,T)



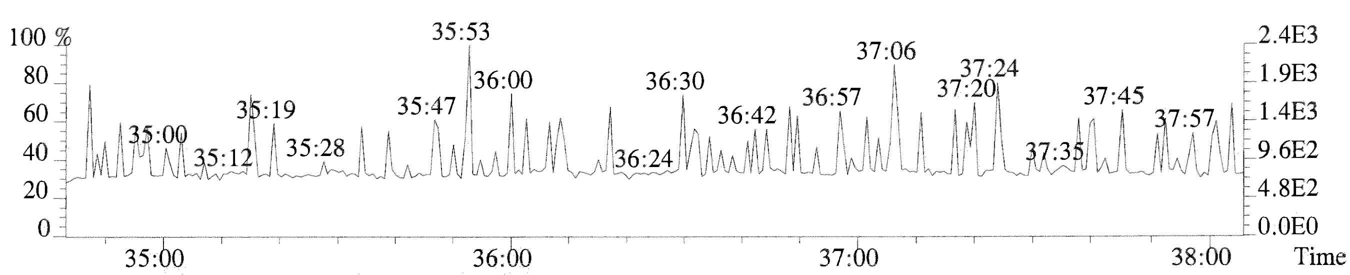
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



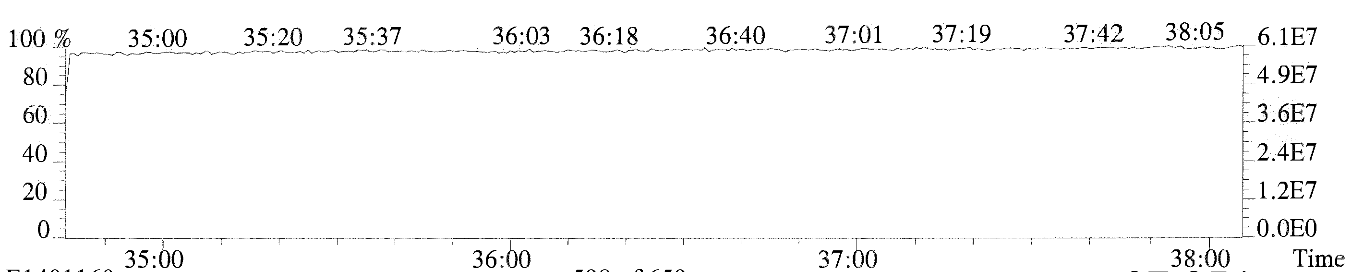
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

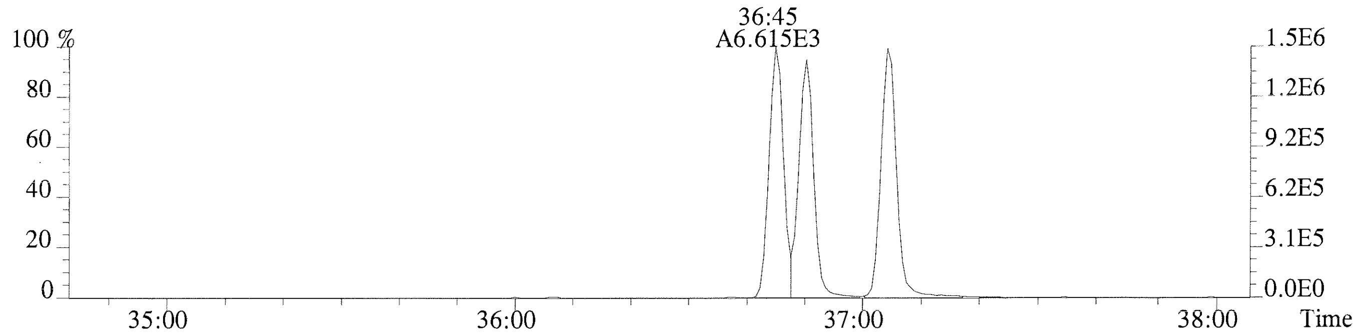


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

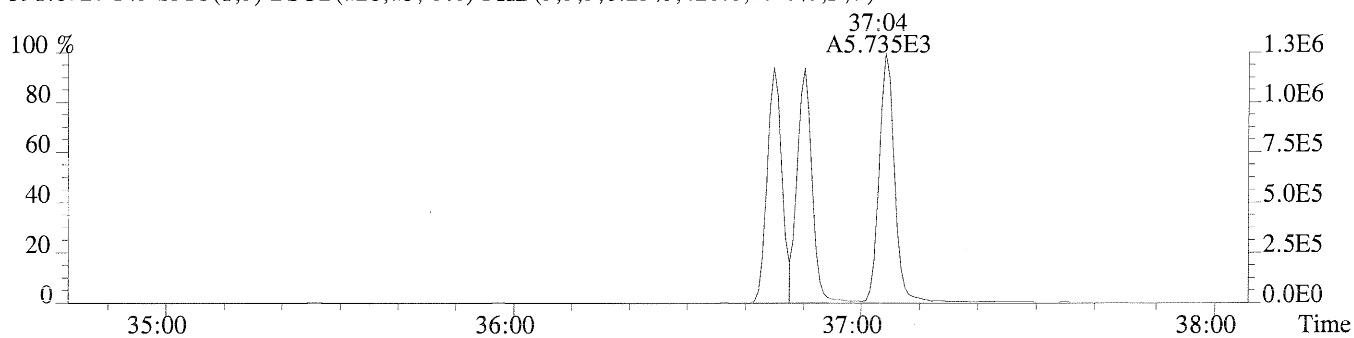


File:P230732 #1-307 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

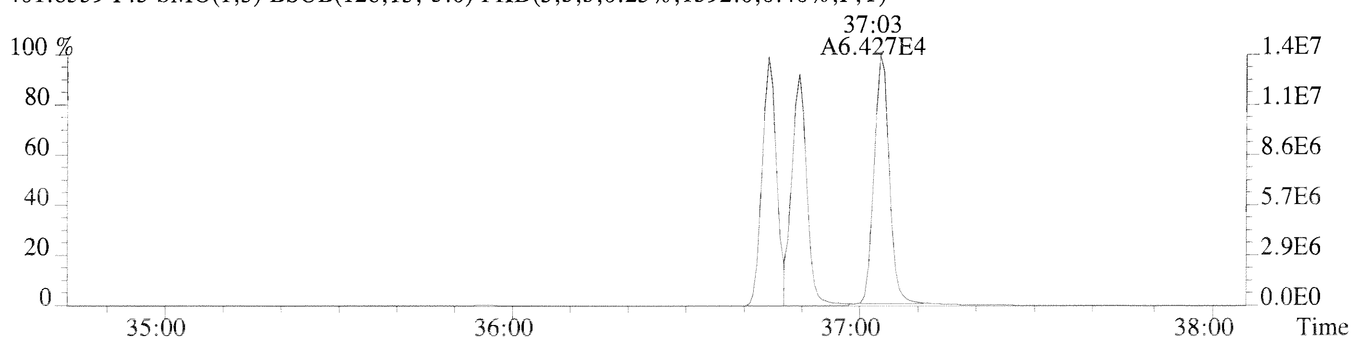
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



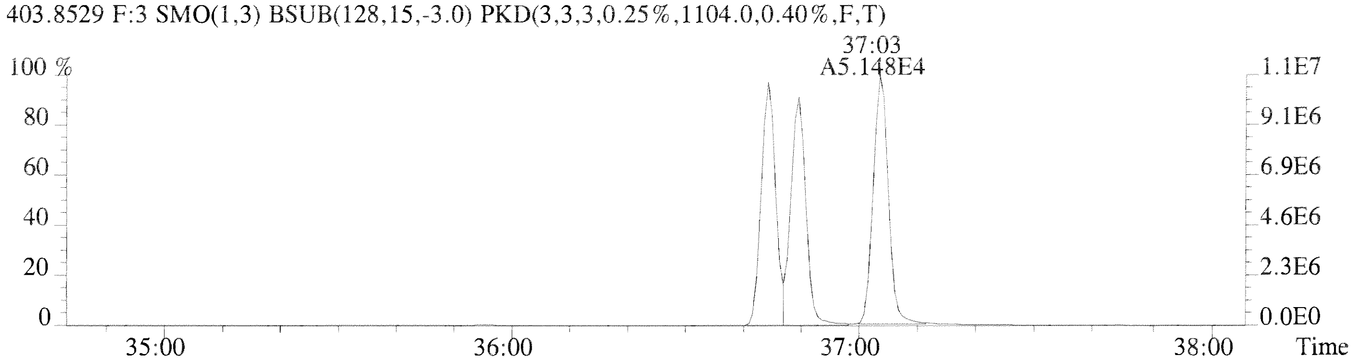
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



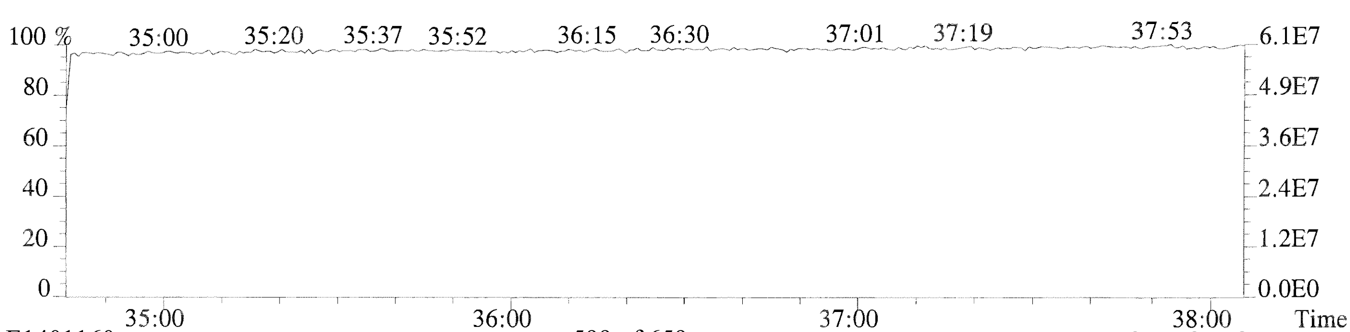
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



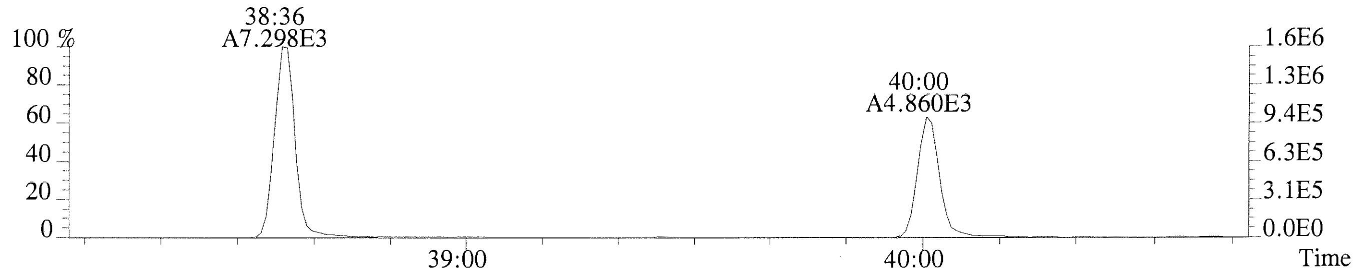
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



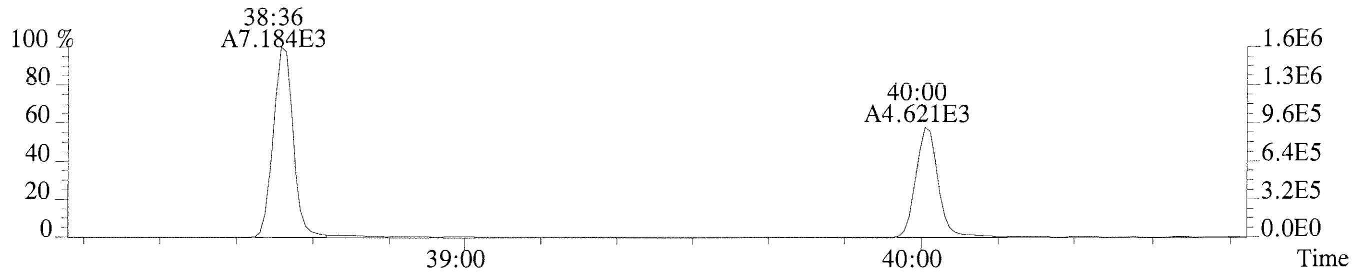
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



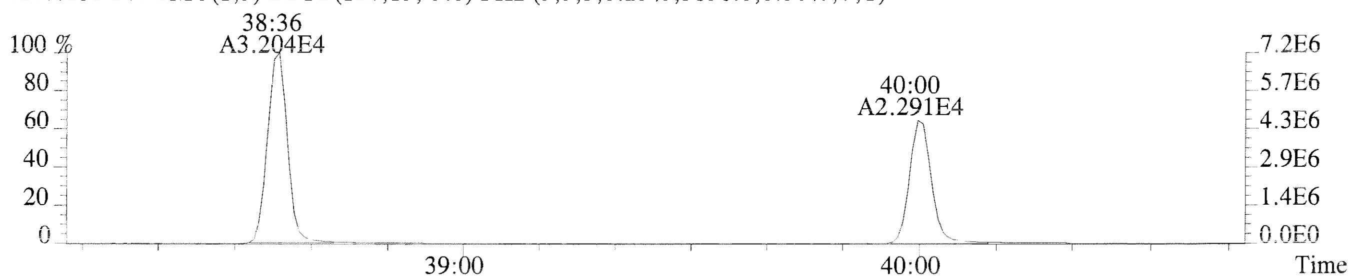
File:P230732 #1-234 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.50%,F,T)



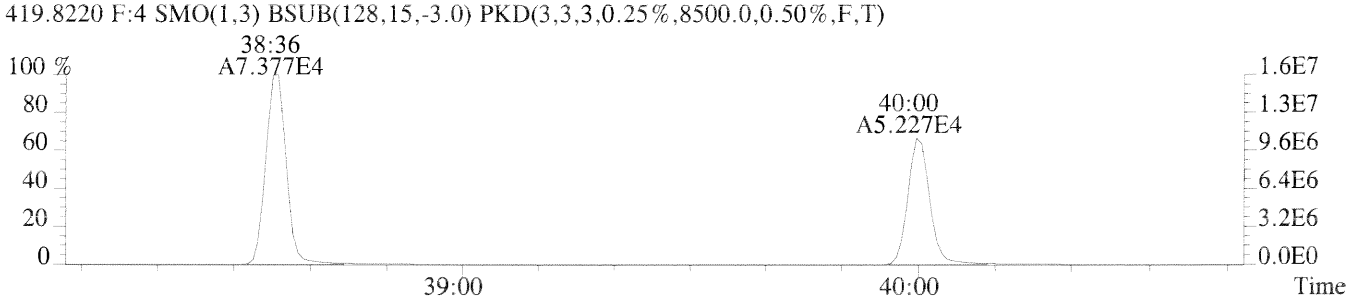
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.50%,F,T)



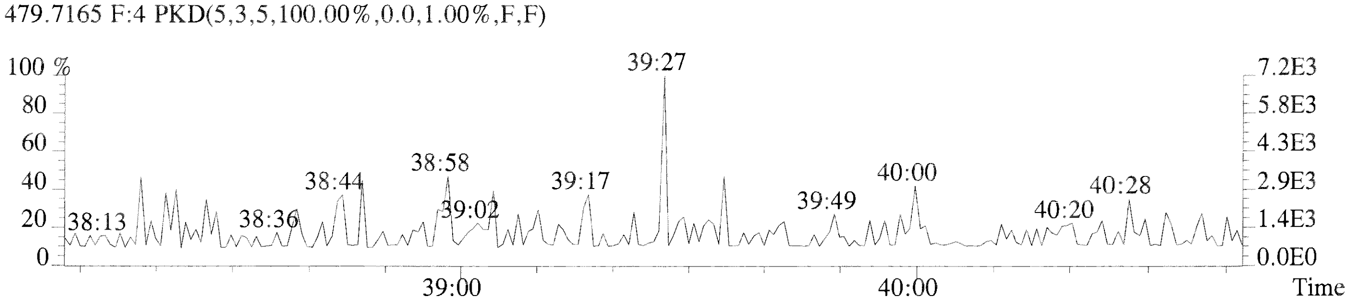
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3856.0,0.50%,F,T)



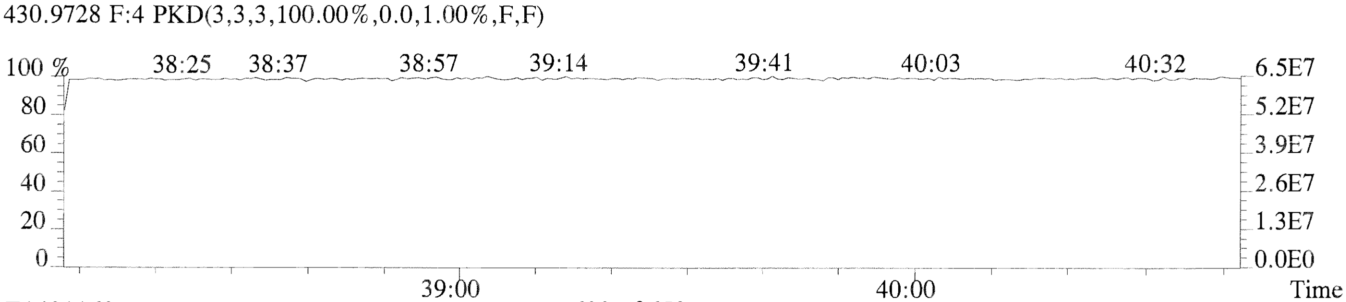
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8500.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

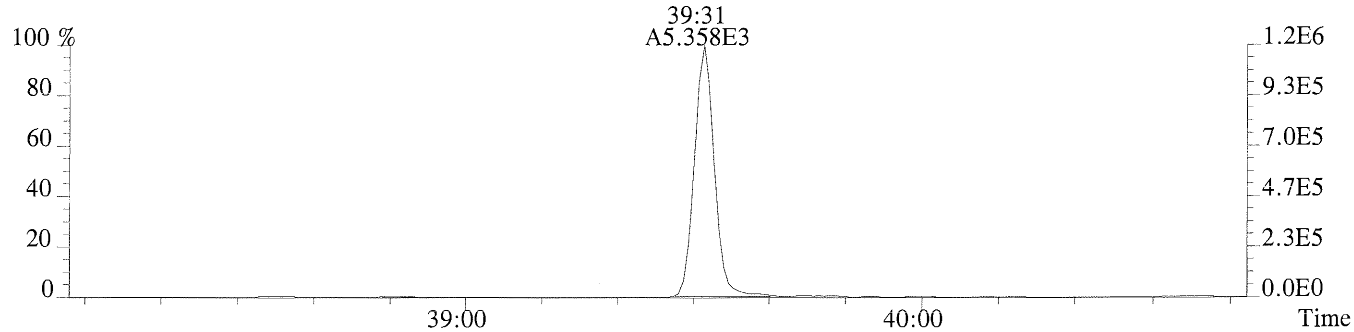


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

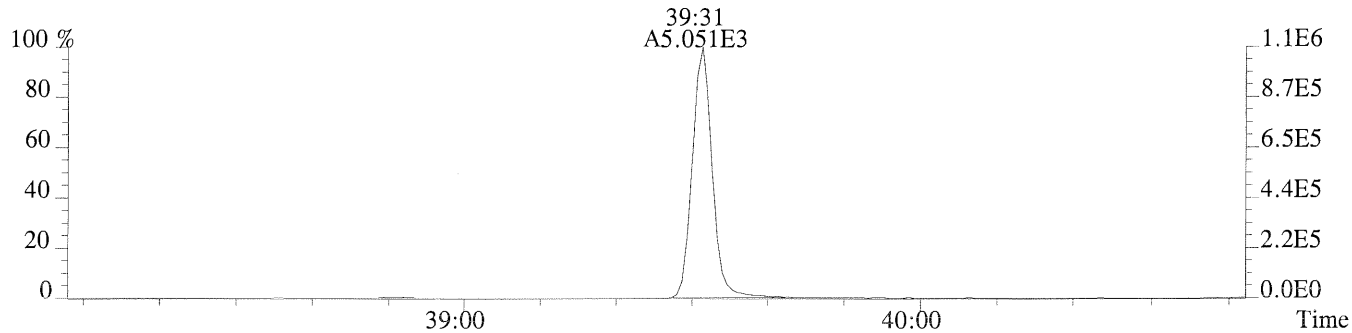


File:P230732 #1-234 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

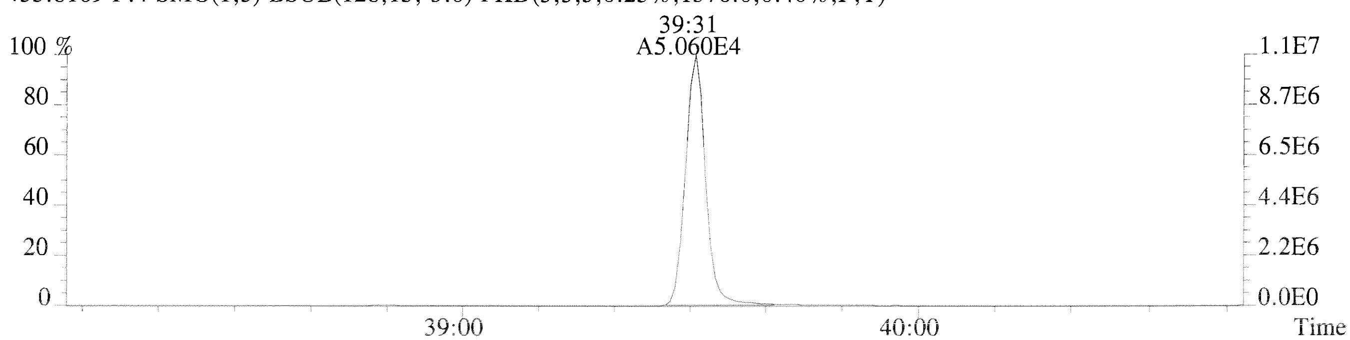
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



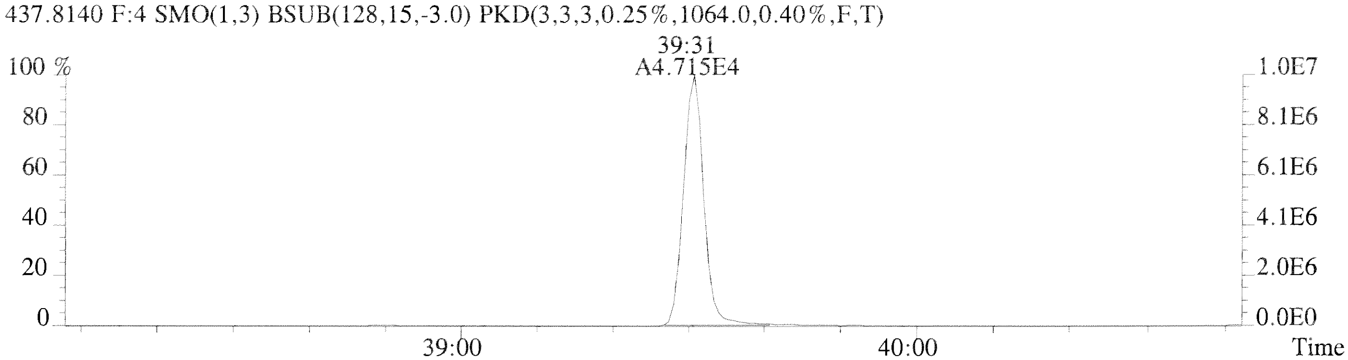
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



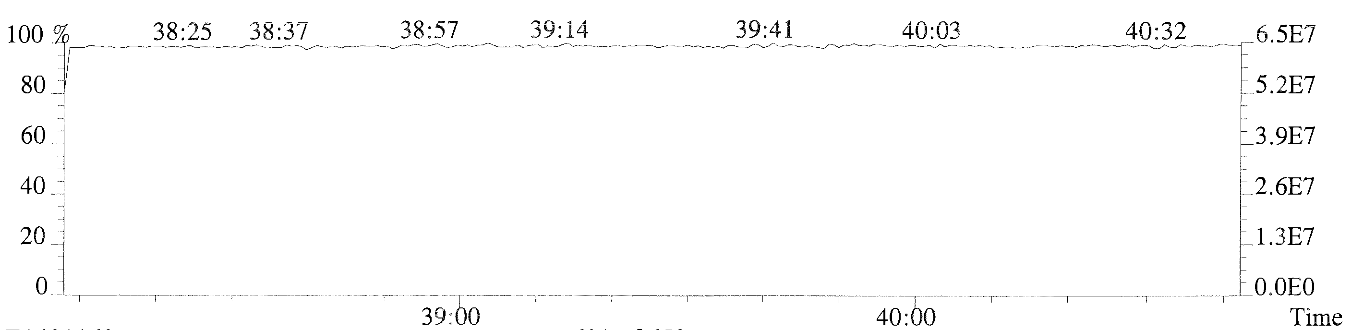
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)

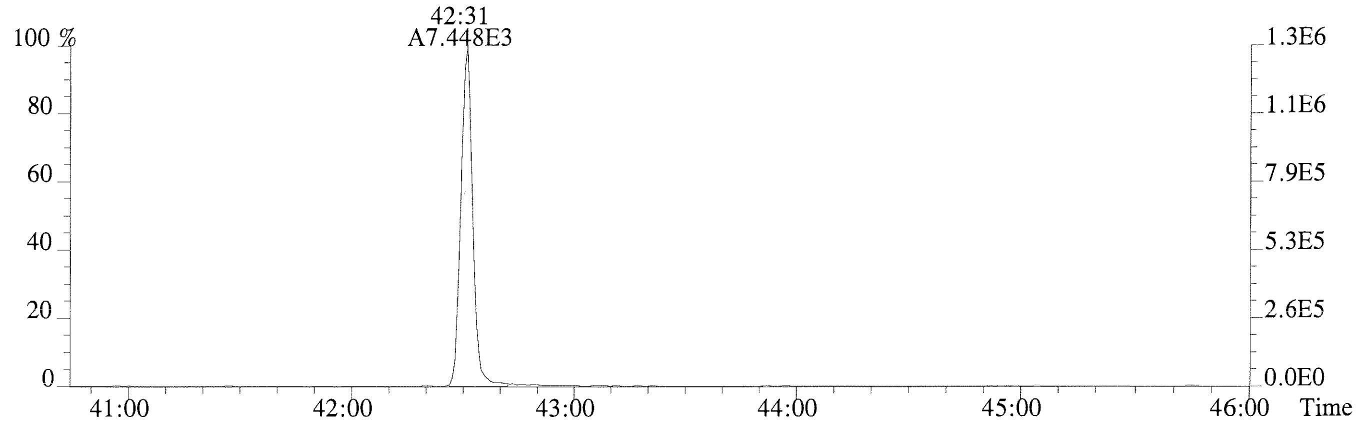


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

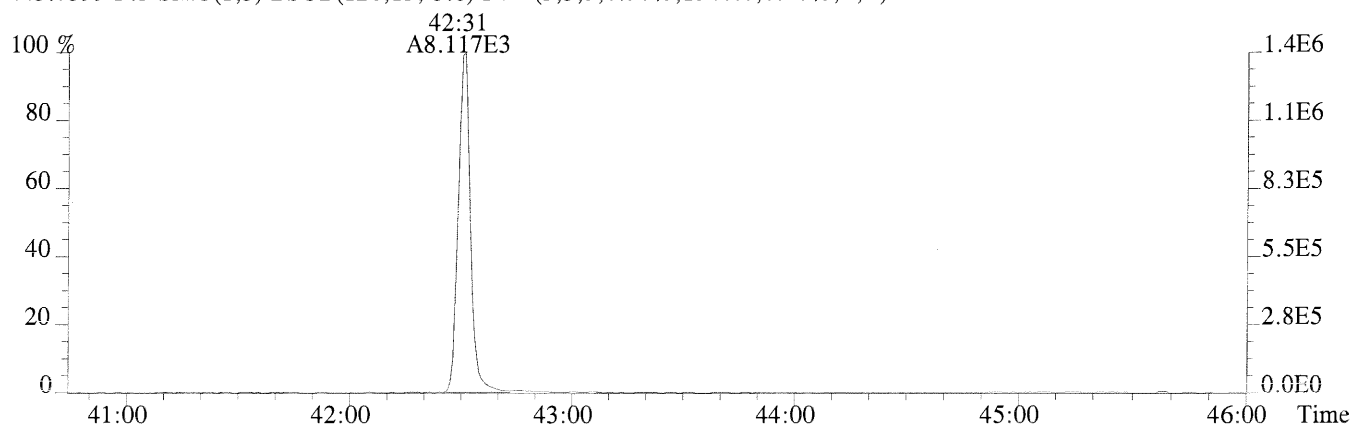


File:P230732 #1-484 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

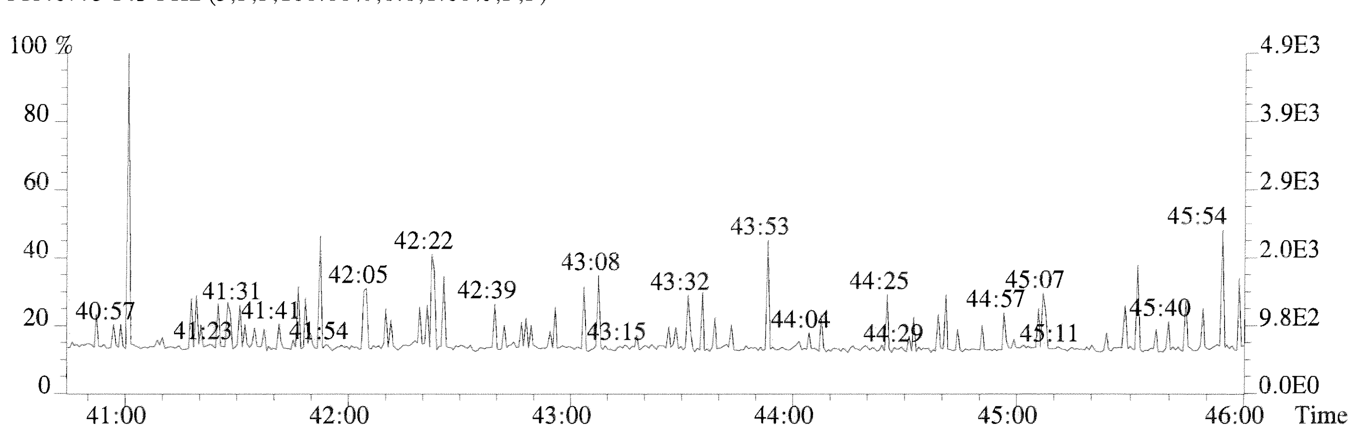
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



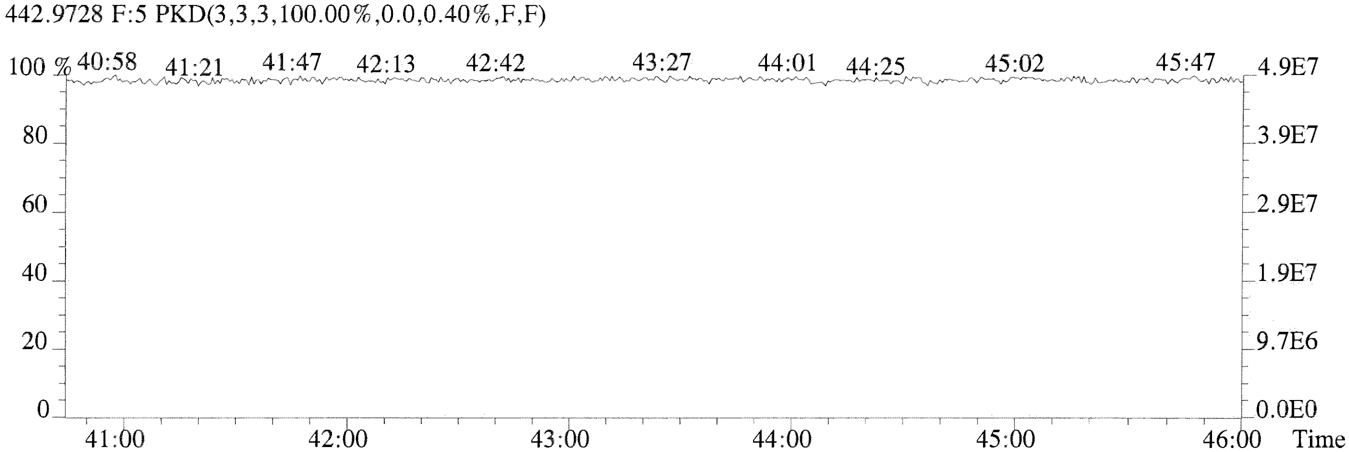
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1540.0,0.40%,F,T)



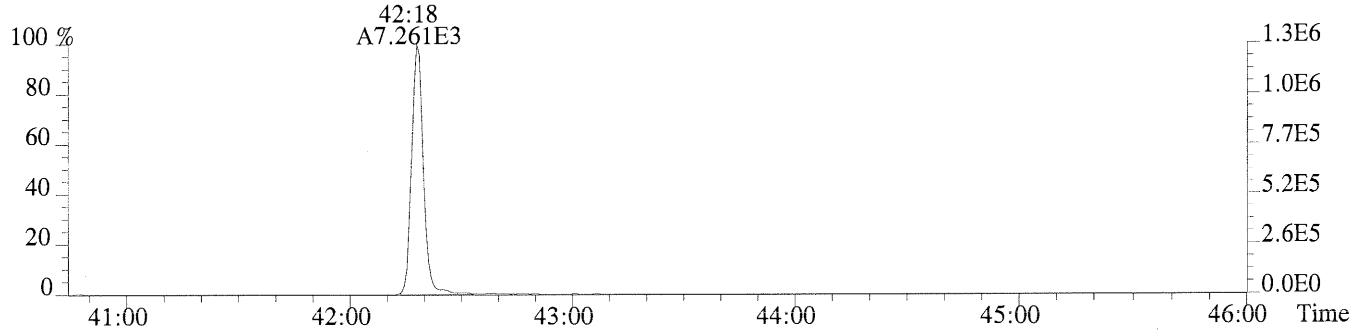
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



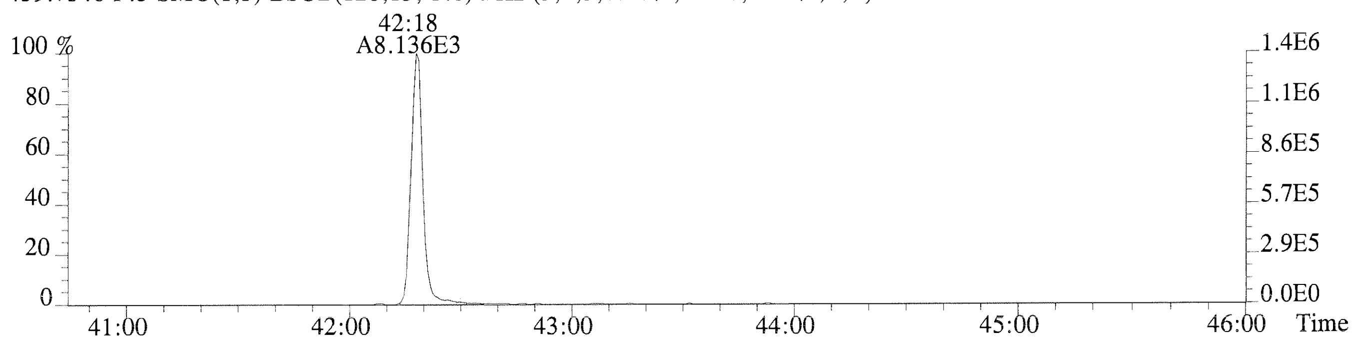
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



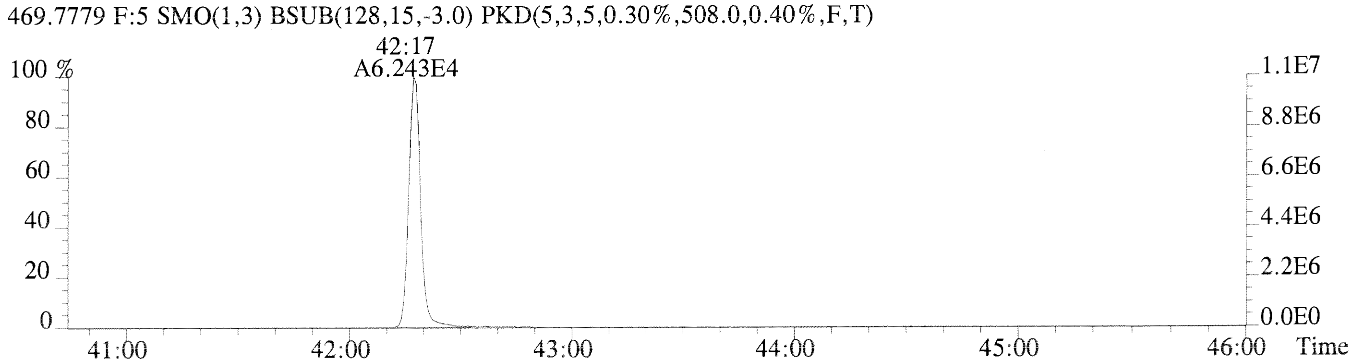
File:P230732 #1-484 Acq:24-AUG-2014 12:58:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,64.0,0.40%,F,T)



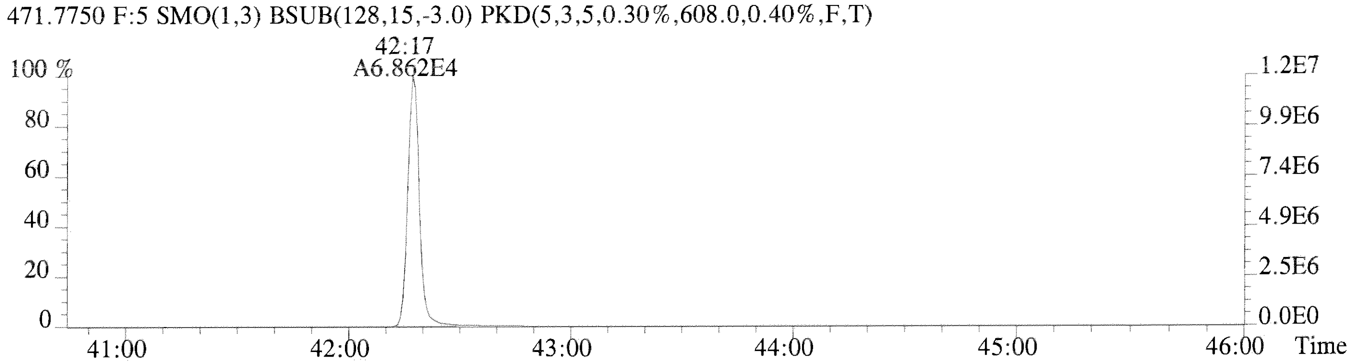
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



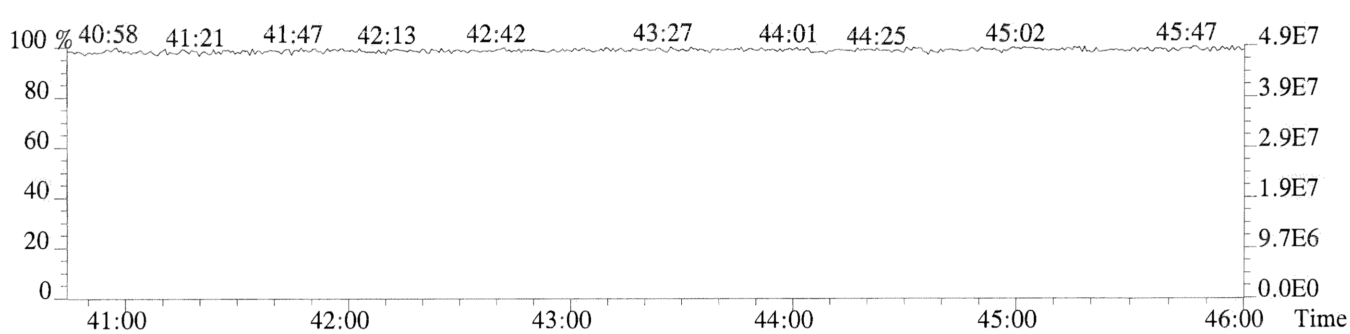
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CLIENT ID.
CS3

Run #4 Filename P230733 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 13:46:32
Processed: 25-AUG-14 11:37:38 LAB. ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	7.292e+03	9.171e+03	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	6.671e+04	4.284e+04	1.56	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	6.261e+04	4.128e+04	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	5.426e+04	4.348e+04	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	5.643e+04	4.561e+04	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	5.382e+04	4.266e+04	1.26	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	4.075e+04	3.246e+04	1.26	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	4.301e+04	4.138e+04	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	2.722e+04	2.596e+04	1.05	yes	no	1.000
10	Unk	OCDF	42:31	4.177e+04	4.585e+04	0.91	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:06	5.269e+03	6.623e+03	0.80	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	4.530e+04	2.885e+04	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	4.078e+04	3.170e+04	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:50	3.919e+04	3.091e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	4.228e+04	3.320e+04	1.27	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	3.171e+04	3.018e+04	1.05	yes	no	1.000
17	Unk	OCDD	42:19	4.206e+04	4.702e+04	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:18	7.405e+04	9.275e+04	0.80	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.309e+05	8.249e+04	1.59	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.322e+05	8.360e+04	1.58	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	5.521e+04	1.065e+05	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	6.226e+04	1.188e+05	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	5.950e+04	1.134e+05	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	4.315e+04	8.364e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	3.798e+04	8.574e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.513e+04	5.736e+04	0.44	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	5.085e+04	6.411e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:39	9.198e+04	5.796e+04	1.59	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	7.318e+04	5.787e+04	1.26	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	7.066e+04	5.544e+04	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	5.959e+04	5.585e+04	1.07	yes	no	1.066
32	IS	13C-OCDD	42:18	7.147e+04	7.953e+04	0.90	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	5.071e+04	6.336e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	7.682e+04	6.149e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	1.229e+04				no	1.020

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3

Run #4 Filename P230733 Samp: 1 Inj: 1 Acquired: 24-AUG-14 13:46:32
Processed: 25-AUG-14 11:37:38 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+06	6.12e+02	2.4e+03	1.84e+06	2.08e+03	8.8e+02
2	1,2,3,7,8-PeCDF	1.29e+07	1.52e+02	8.5e+04	8.22e+06	1.45e+03	5.7e+03
3	2,3,4,7,8-PeCDF	1.28e+07	1.52e+02	8.4e+04	8.41e+06	1.45e+03	5.8e+03
4	1,2,3,4,7,8-HxCDF	1.22e+07	9.44e+02	1.3e+04	9.71e+06	1.40e+02	6.9e+04
5	1,2,3,6,7,8-HxCDF	1.23e+07	9.44e+02	1.3e+04	9.90e+06	1.40e+02	7.1e+04
6	2,3,4,6,7,8-HxCDF	1.20e+07	9.44e+02	1.3e+04	9.55e+06	1.40e+02	6.8e+04
7	1,2,3,7,8,9-HxCDF	8.69e+06	9.44e+02	9.2e+03	7.05e+06	1.40e+02	5.0e+04
8	1,2,3,4,6,7,8-HpCDF	9.77e+06	7.05e+03	1.4e+03	9.39e+06	6.24e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	5.69e+06	7.05e+03	8.1e+02	5.39e+06	6.24e+03	8.6e+02
10	OCDF	7.26e+06	1.04e+02	7.0e+04	8.16e+06	1.04e+03	7.8e+03
11	2,3,7,8-TCDD	1.13e+06	7.00e+02	1.6e+03	1.45e+06	9.28e+02	1.6e+03
12	1,2,3,7,8-PeCDD	9.26e+06	7.68e+02	1.2e+04	5.85e+06	1.00e+02	5.9e+04
13	1,2,3,4,7,8-HxCDD	9.14e+06	2.80e+02	3.3e+04	7.05e+06	6.76e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	8.52e+06	2.80e+02	3.0e+04	6.79e+06	6.76e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	9.35e+06	2.80e+02	3.3e+04	7.41e+06	6.76e+02	1.1e+04
16	1,2,3,4,6,7,8-HpCDD	6.60e+06	9.68e+02	6.8e+03	6.25e+06	5.92e+02	1.1e+04
17	OCDD	7.62e+06	3.12e+02	2.4e+04	8.47e+06	3.08e+02	2.8e+04
18	13C-2,3,7,8-TCDF	1.51e+07	1.88e+03	8.0e+03	1.90e+07	1.48e+03	1.3e+04
19	13C-1,2,3,7,8-PeCDF	2.49e+07	4.84e+02	5.1e+04	1.55e+07	1.32e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	2.66e+07	4.84e+02	5.5e+04	1.68e+07	1.32e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.23e+07	5.80e+02	2.1e+04	2.36e+07	2.05e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.35e+07	5.80e+02	2.3e+04	2.57e+07	2.05e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.31e+07	5.80e+02	2.3e+04	2.50e+07	2.05e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	9.25e+06	5.80e+02	1.6e+04	1.78e+07	2.05e+03	8.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.54e+06	1.84e+03	4.6e+03	1.94e+07	5.44e+03	3.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.27e+06	1.84e+03	2.9e+03	1.19e+07	5.44e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.08e+07	4.20e+03	2.6e+03	1.37e+07	2.11e+03	6.5e+03
28	13C-1,2,3,7,8-PeCDD	1.84e+07	8.12e+02	2.3e+04	1.14e+07	5.96e+02	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	1.64e+07	1.40e+03	1.2e+04	1.29e+07	8.96e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	1.54e+07	1.40e+03	1.1e+04	1.22e+07	8.96e+02	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.23e+07	1.72e+03	7.1e+03	1.16e+07	6.76e+02	1.7e+04
32	13C-OCDD	1.27e+07	4.68e+02	2.7e+04	1.41e+07	6.40e+02	2.2e+04
33	13C-1,2,3,4-TCDD	1.07e+07	4.20e+03	2.6e+03	1.33e+07	2.11e+03	6.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.72e+07	1.40e+03	1.2e+04	1.36e+07	8.96e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	2.70e+06	7.92e+02	3.4e+03			

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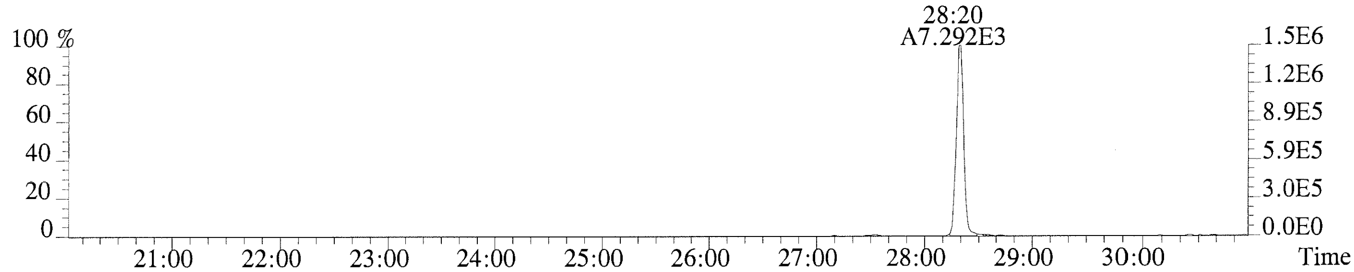
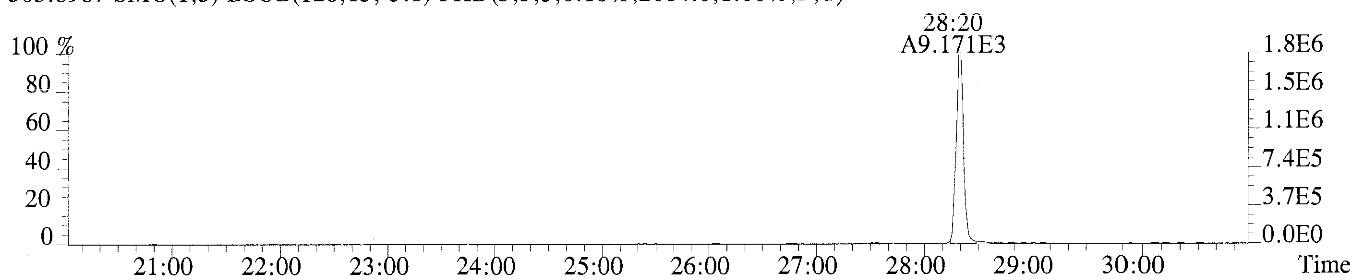
File:P230733 #1-687 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

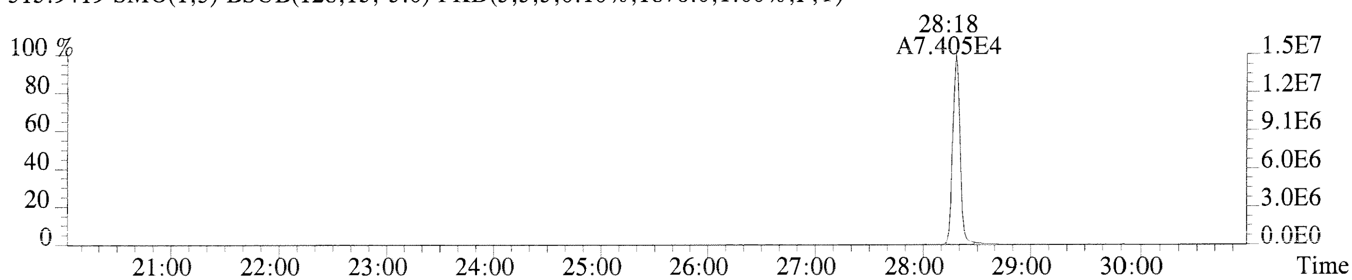
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



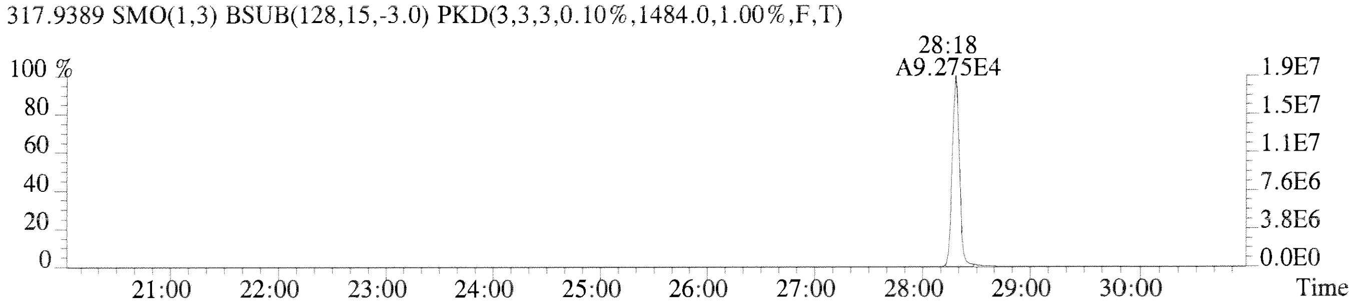
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



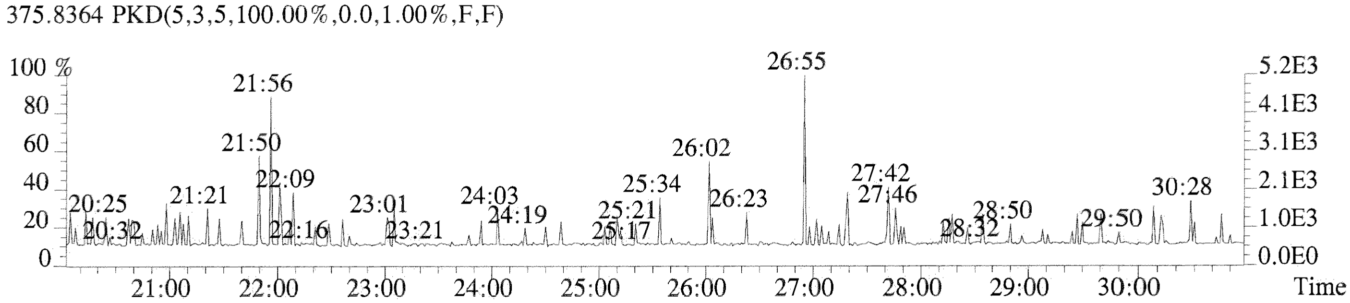
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



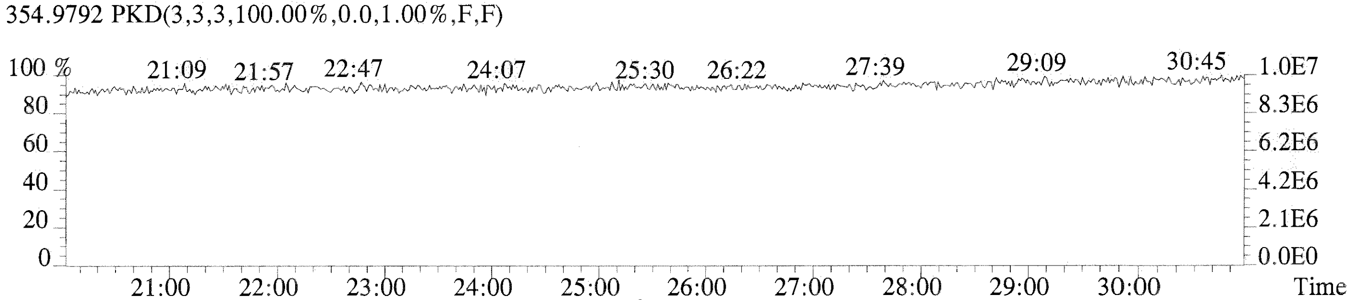
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

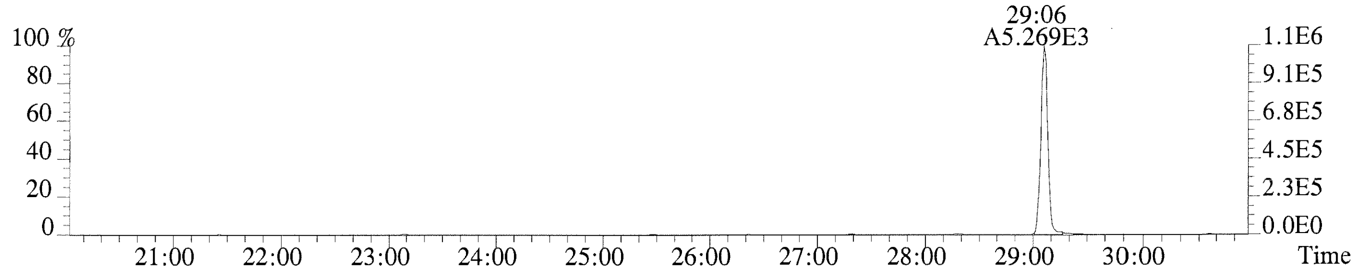


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

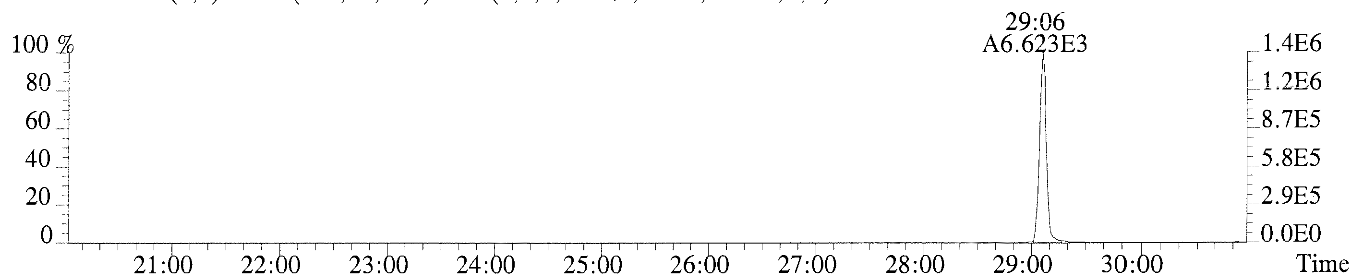


File:P230733 #1-687 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

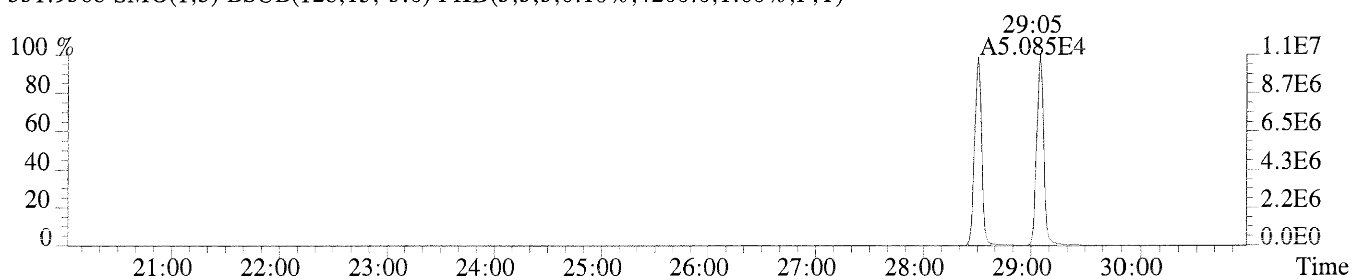
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



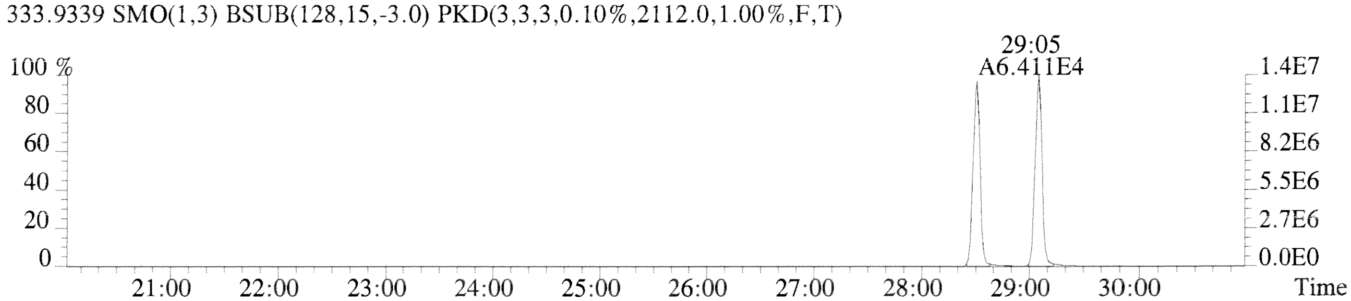
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



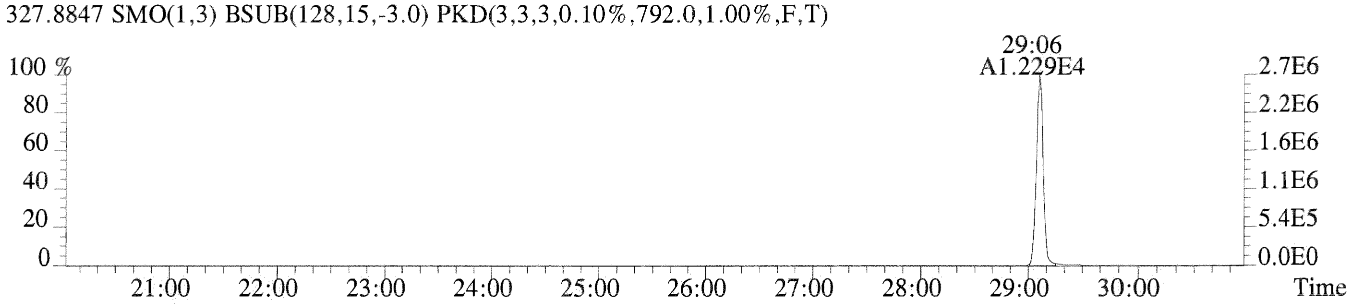
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



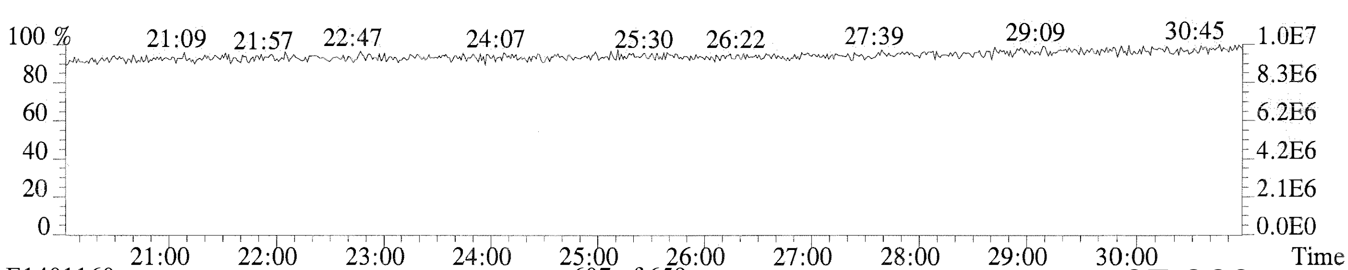
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)



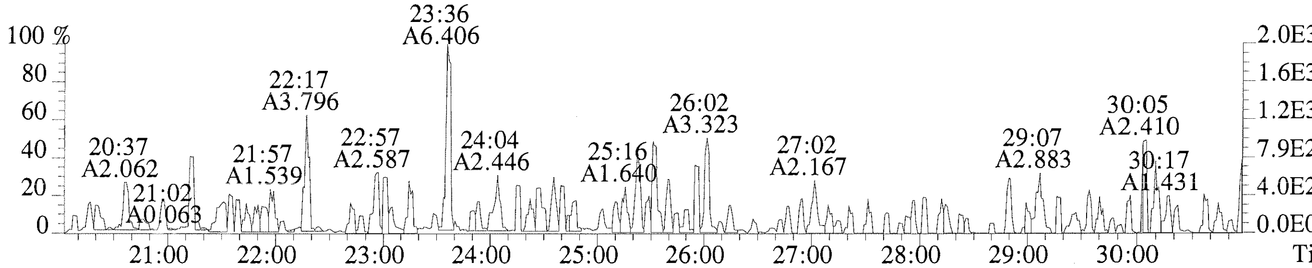
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



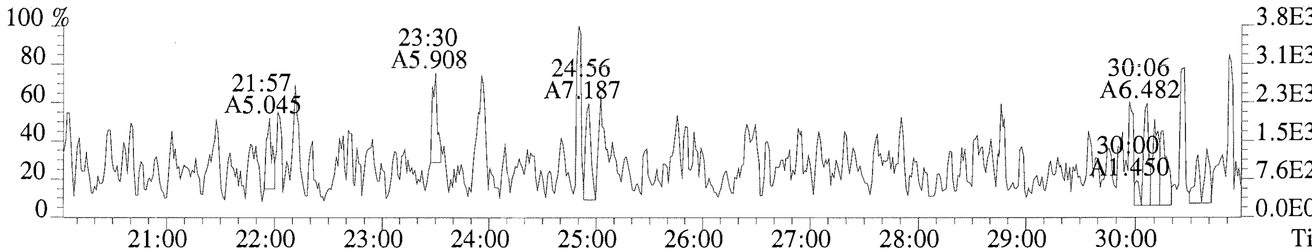
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



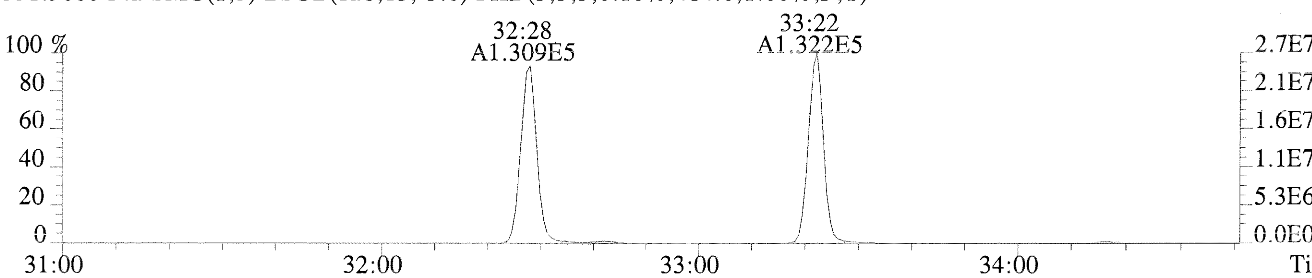
File:P230733 #1-687 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



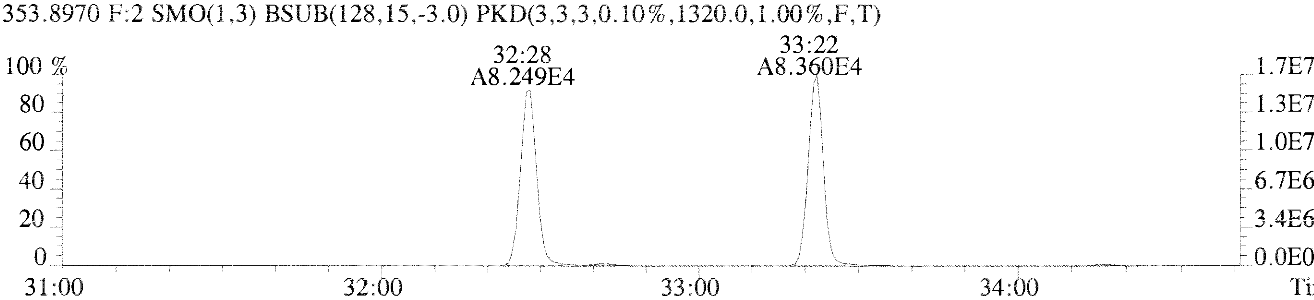
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



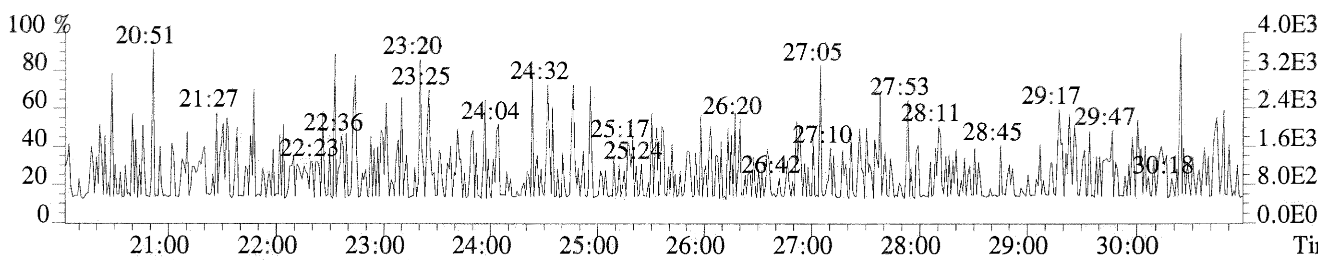
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



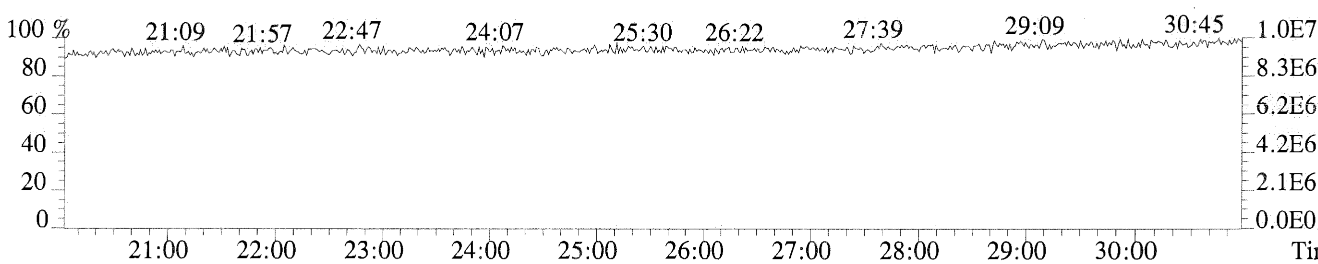
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

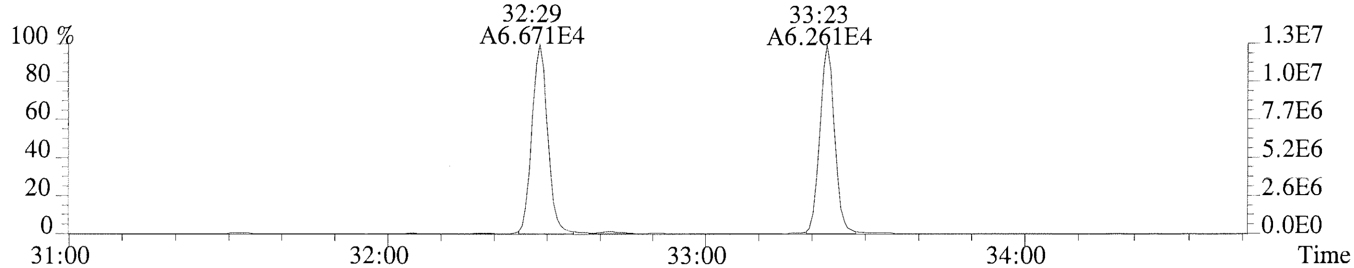


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

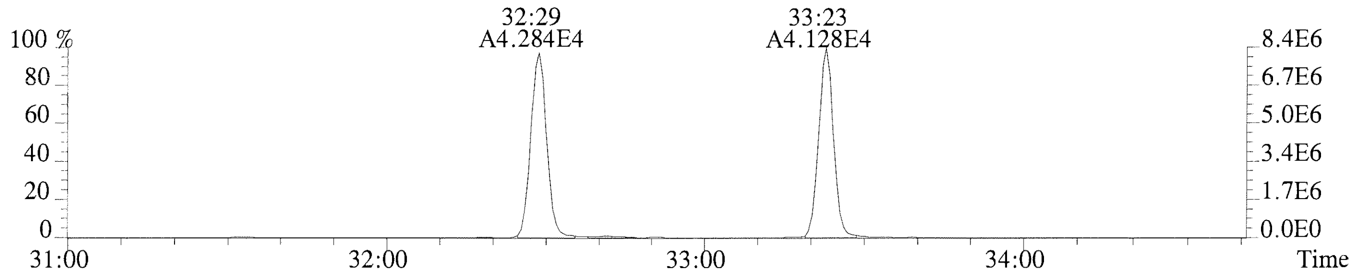


File:P230733 #1-335 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

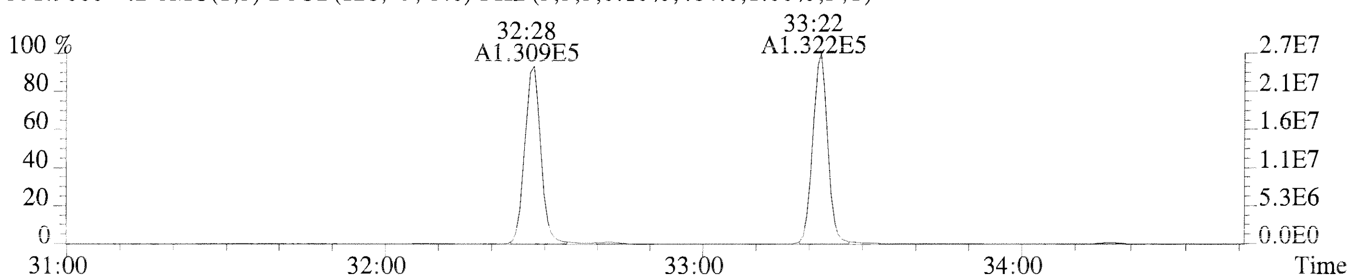
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



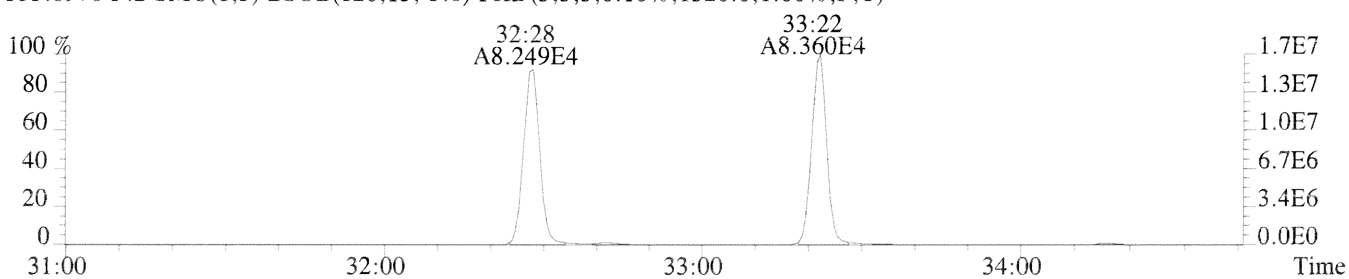
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



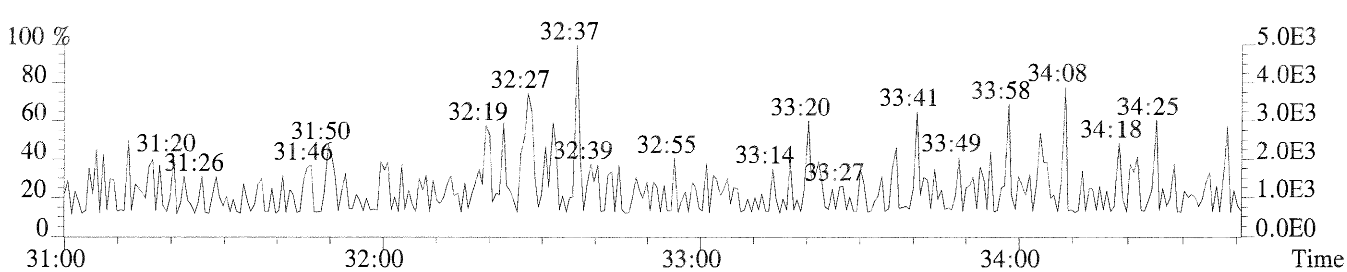
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



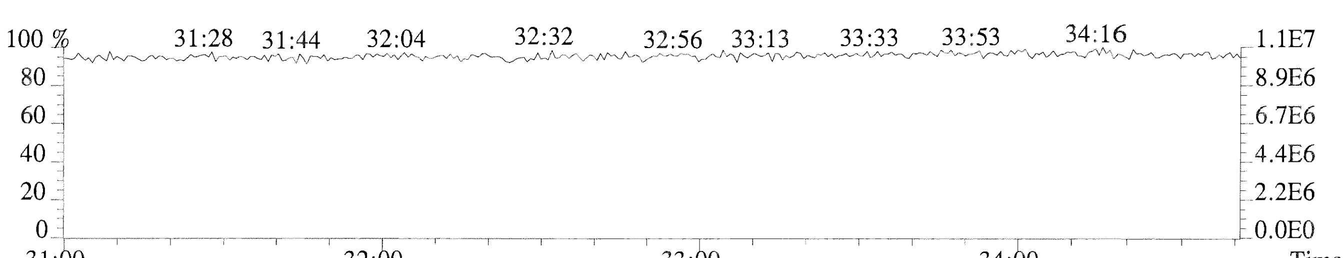
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



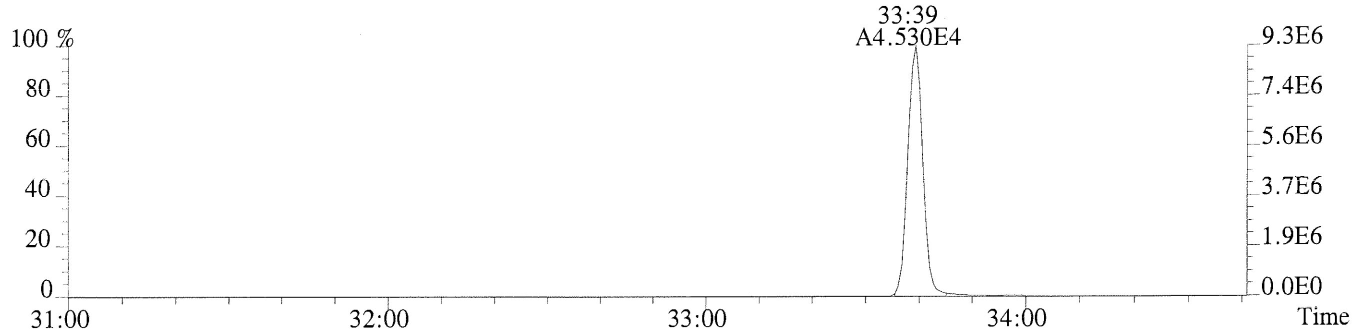
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



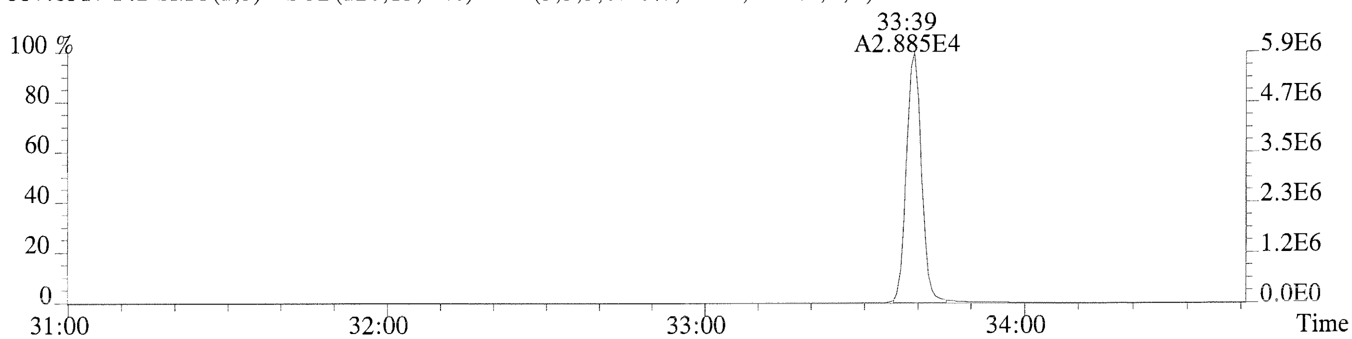
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



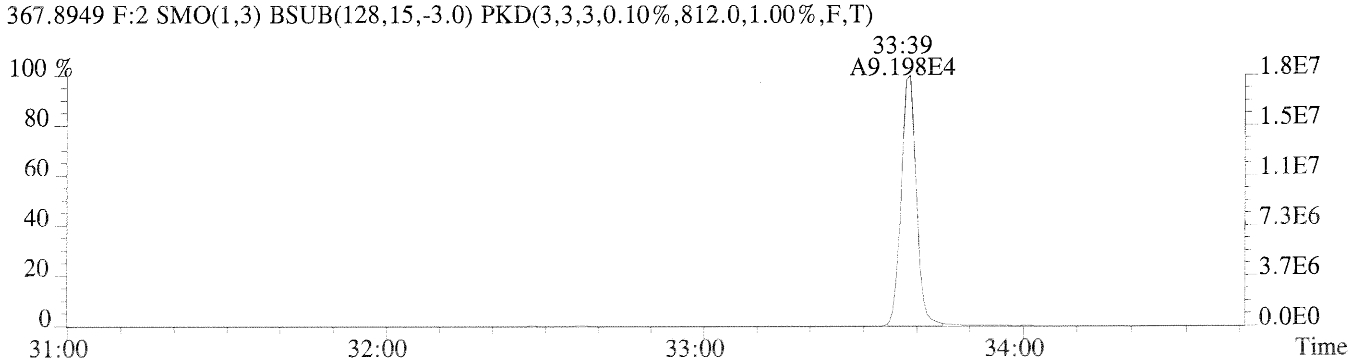
File:P230733 #1-335 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



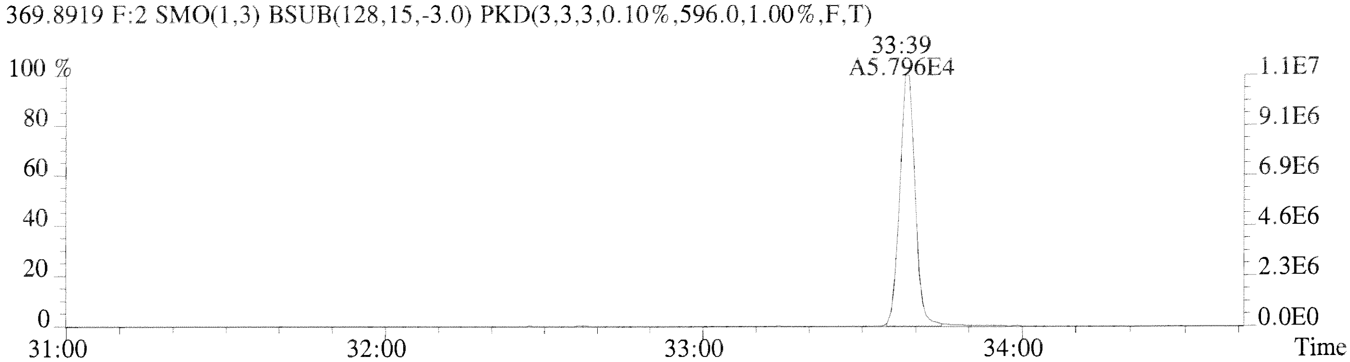
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



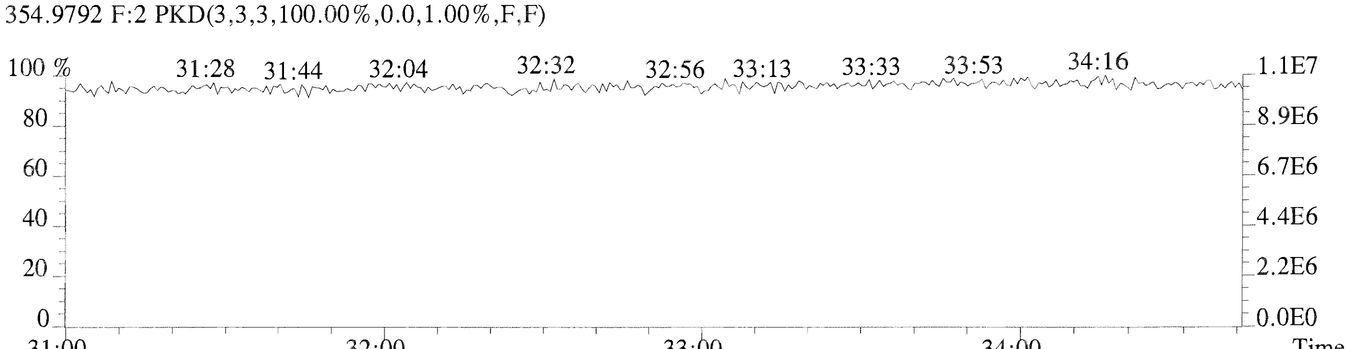
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

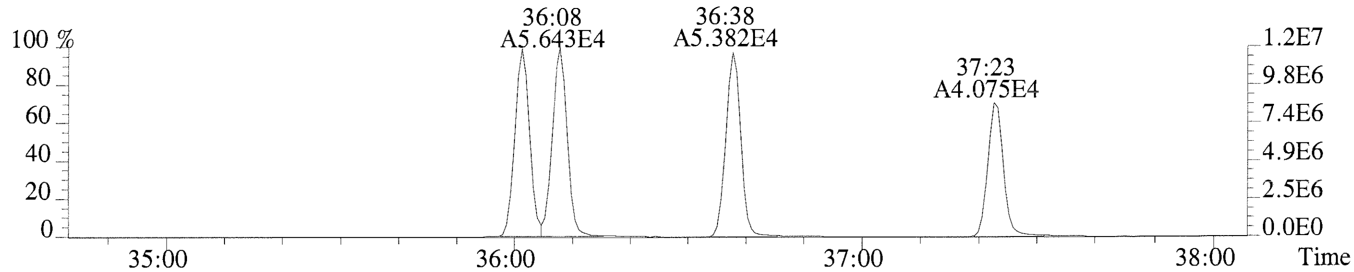


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

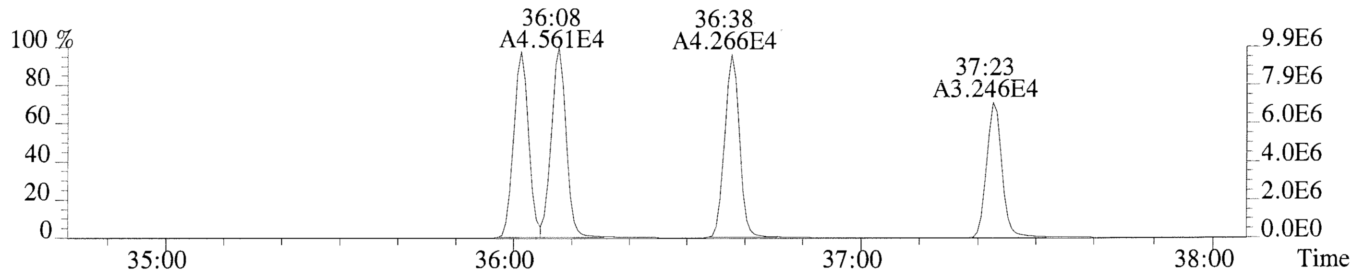


File:P230733 #1-307 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

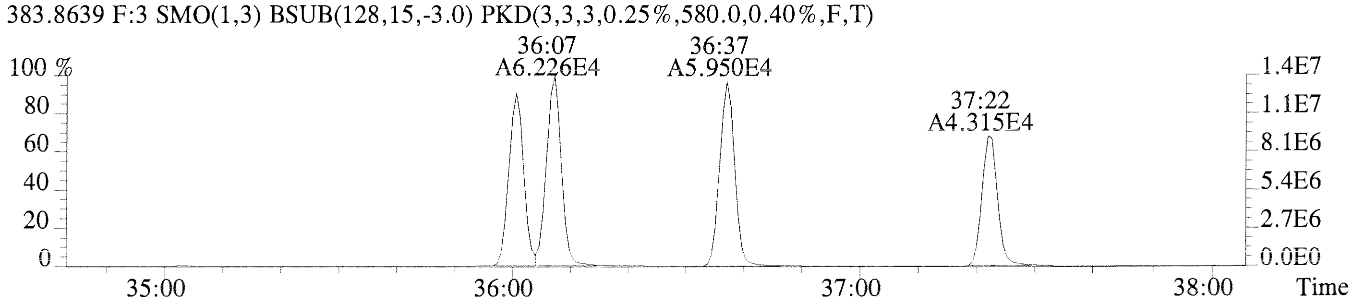
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



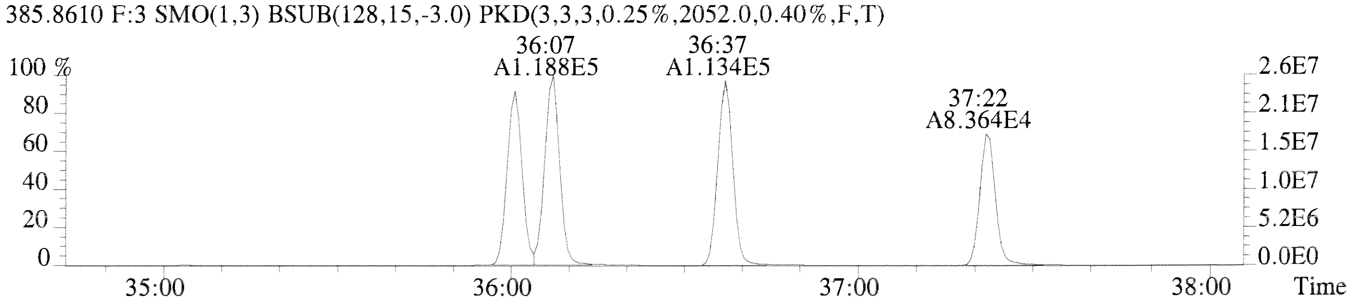
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



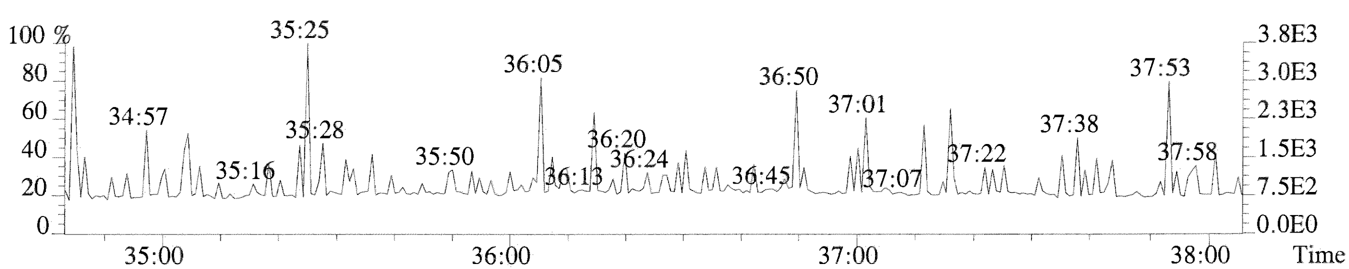
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



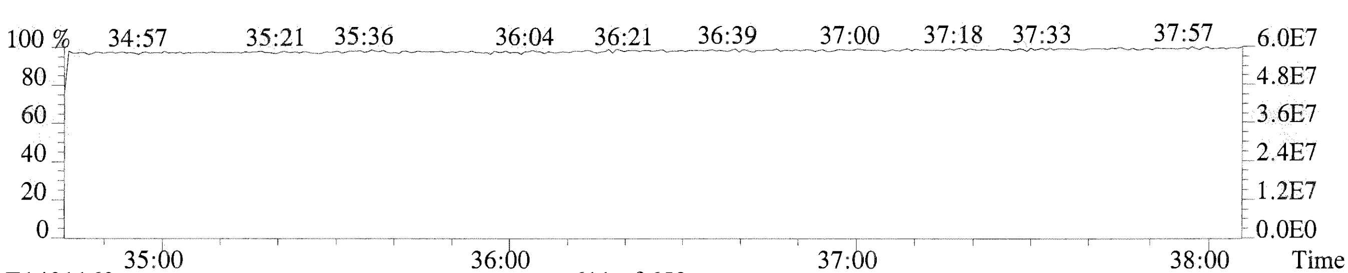
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.40%,F,T)



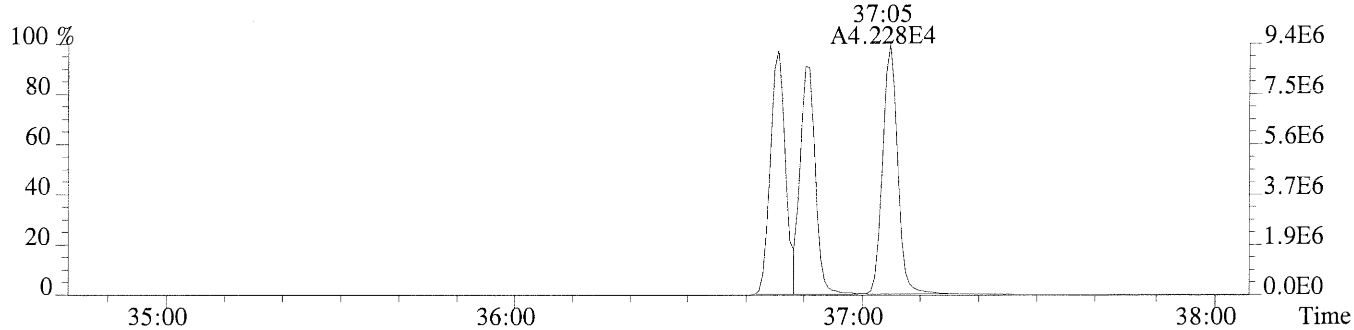
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



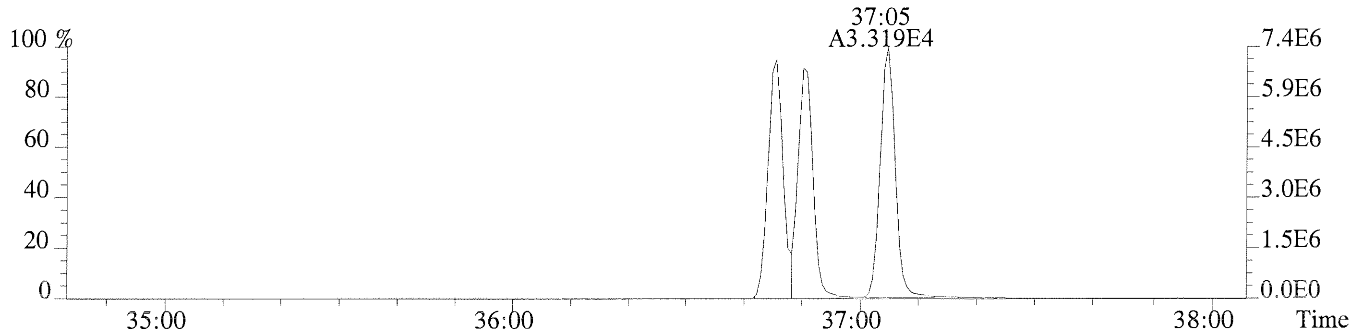
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



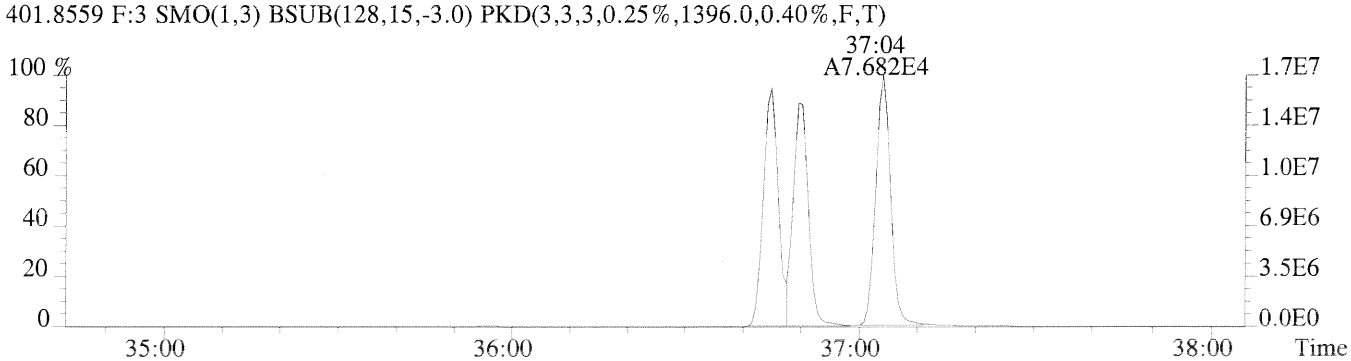
File:P230733 #1-307 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



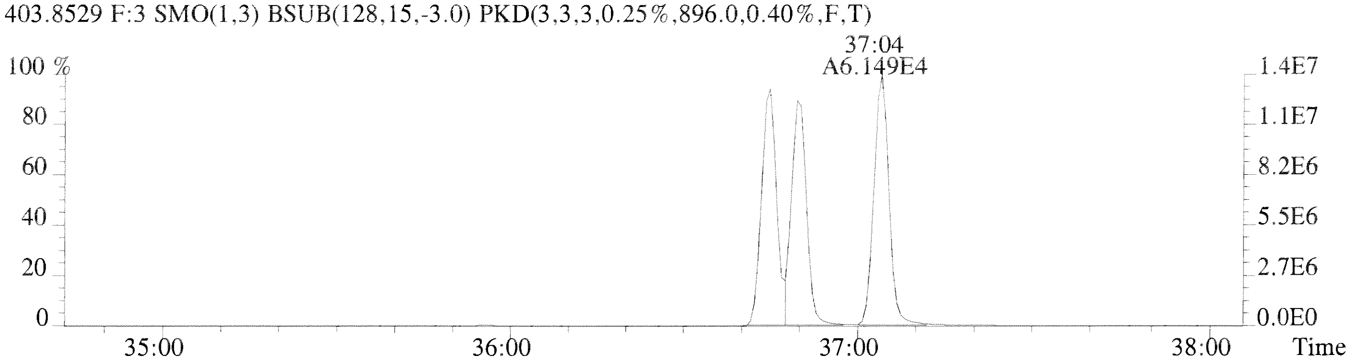
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



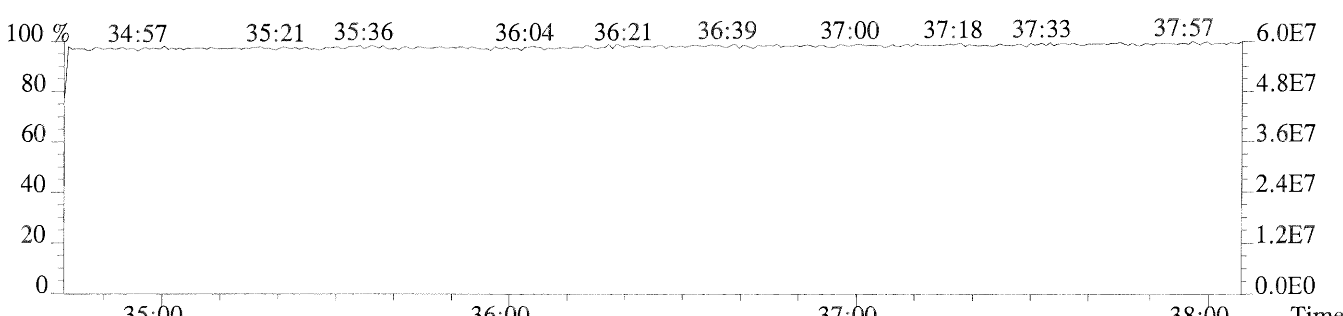
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



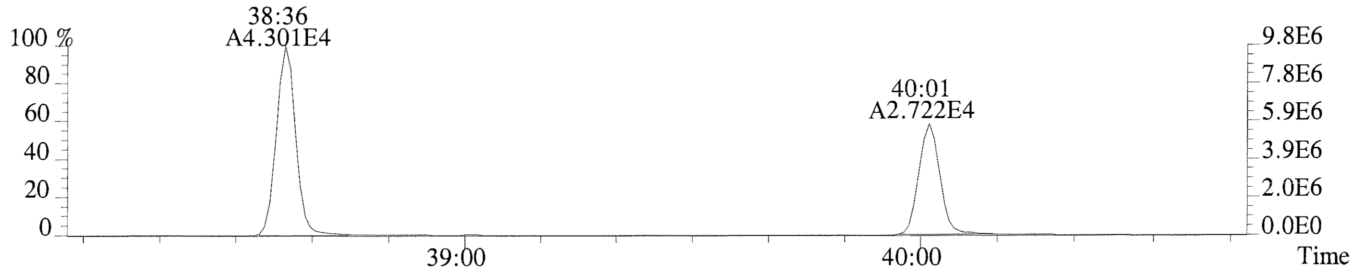
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



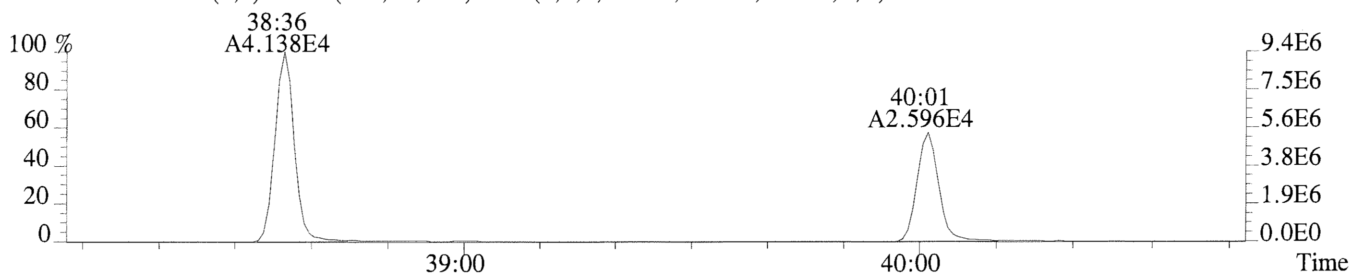
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



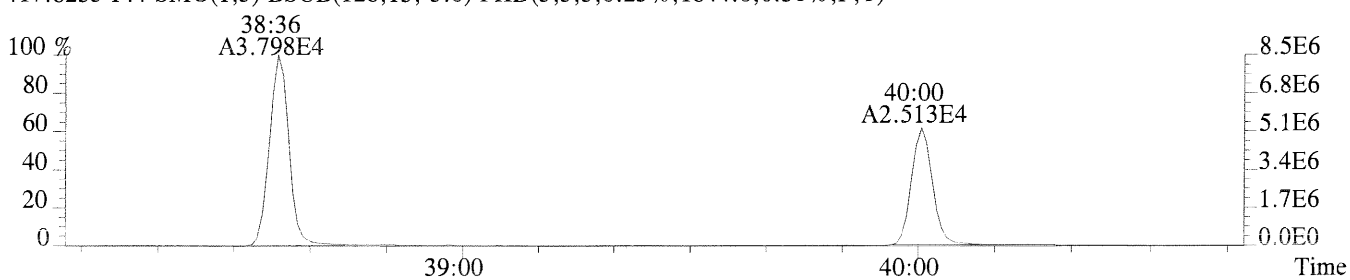
File:P230733 #1-234 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7052.0,0.50%,F,T)



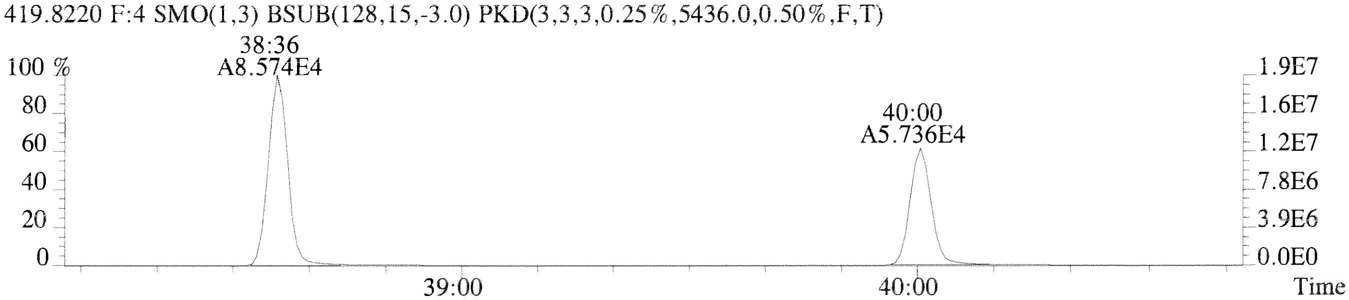
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6244.0,0.50%,F,T)



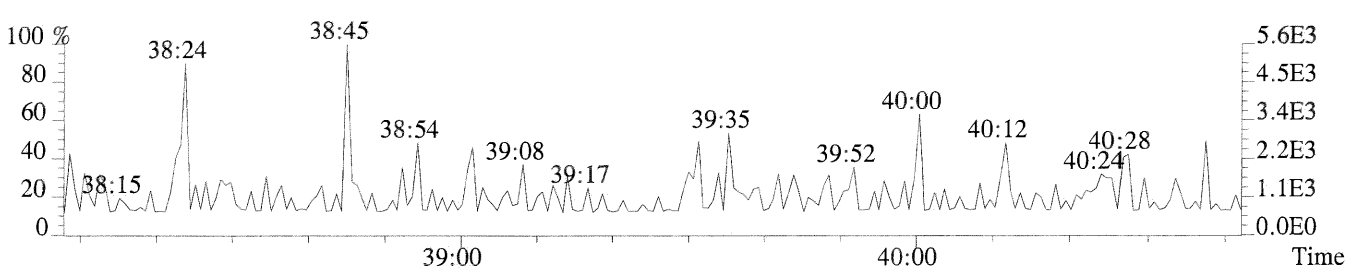
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



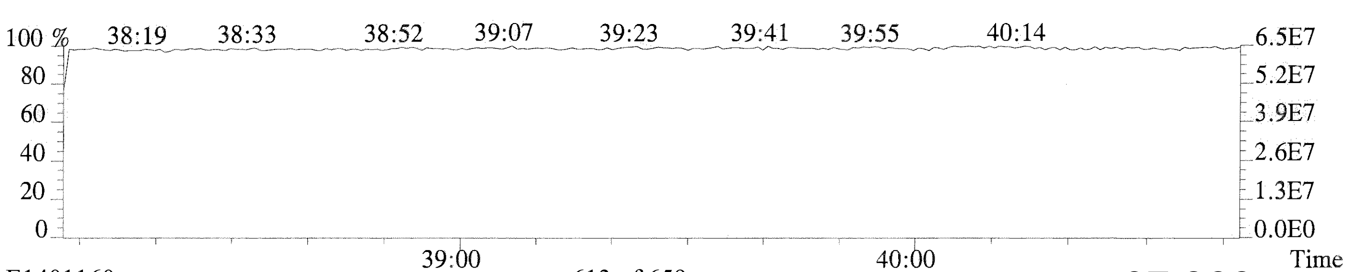
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5436.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

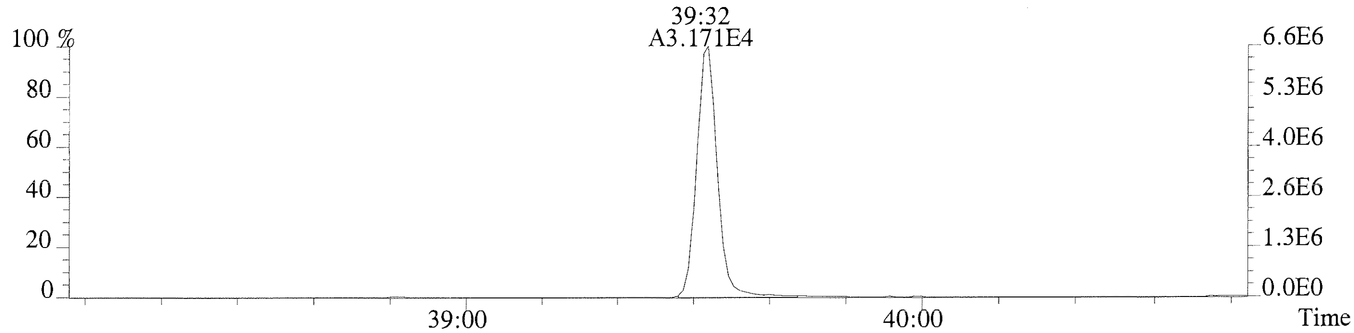


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

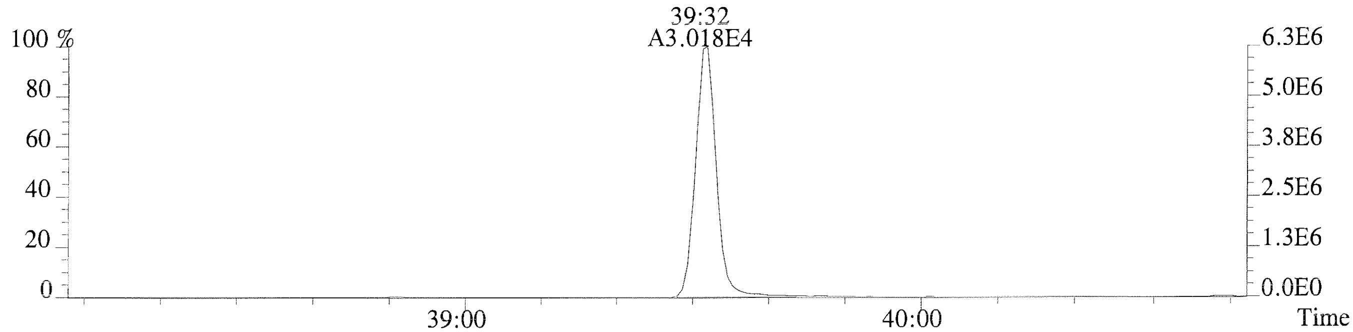


File:P230733 #1-234 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

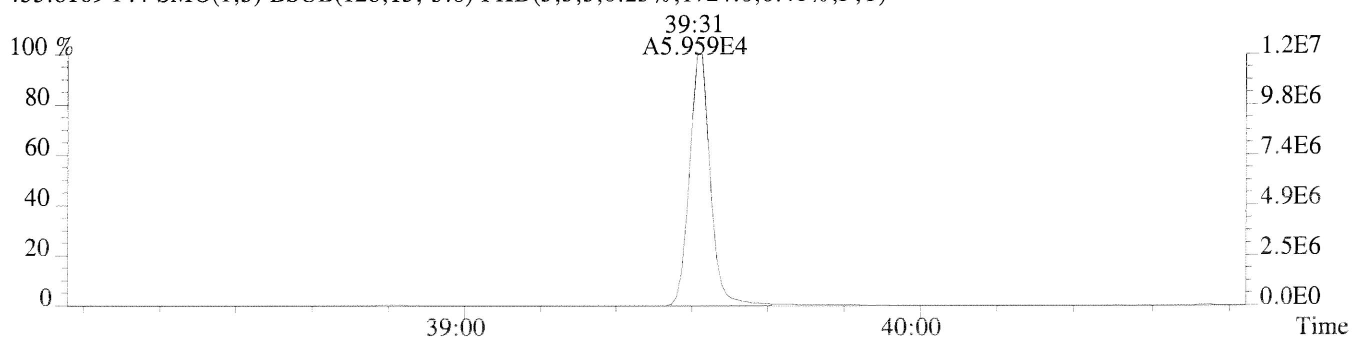
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



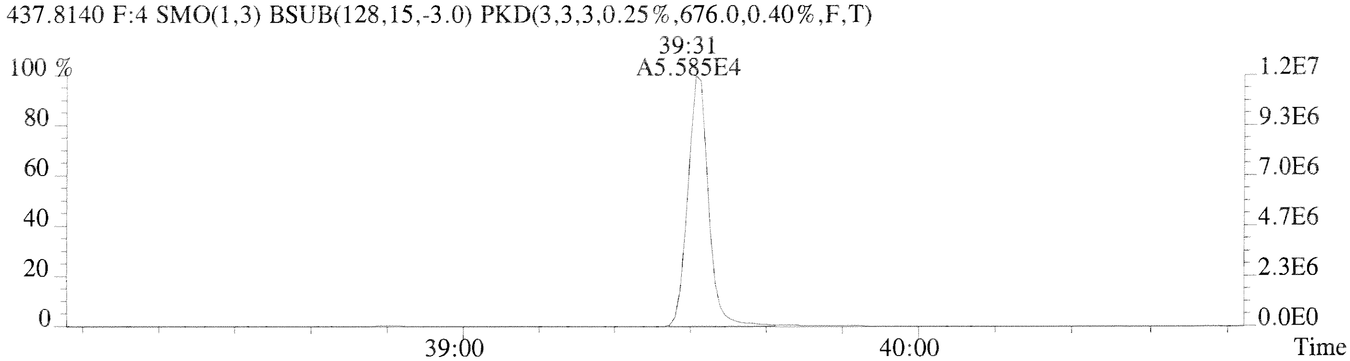
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



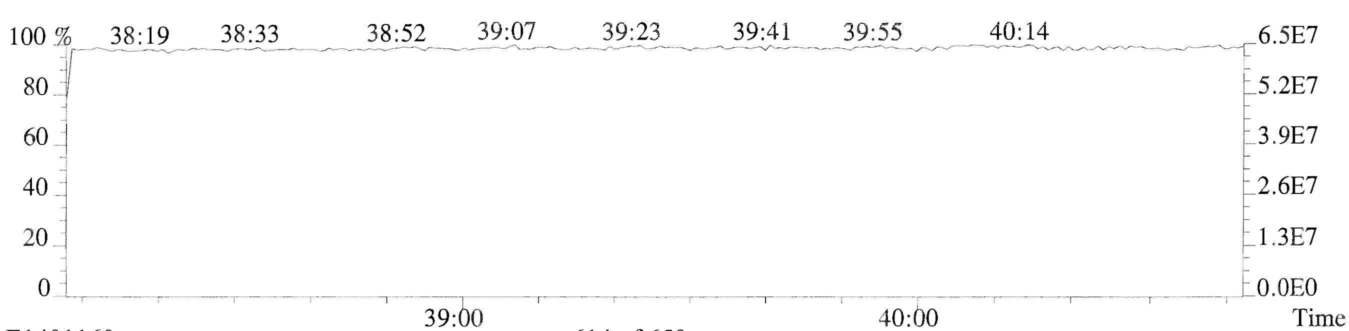
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



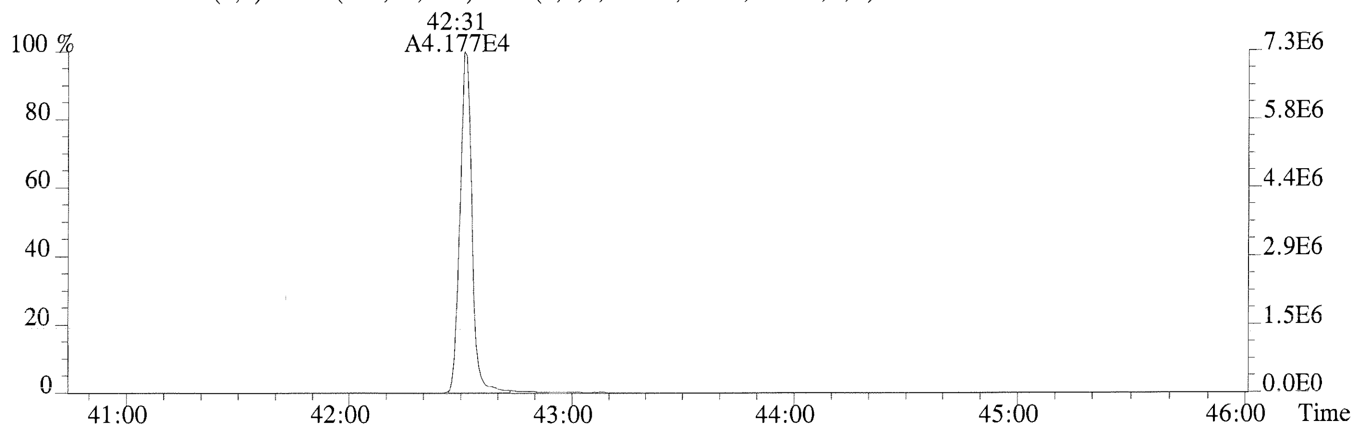
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



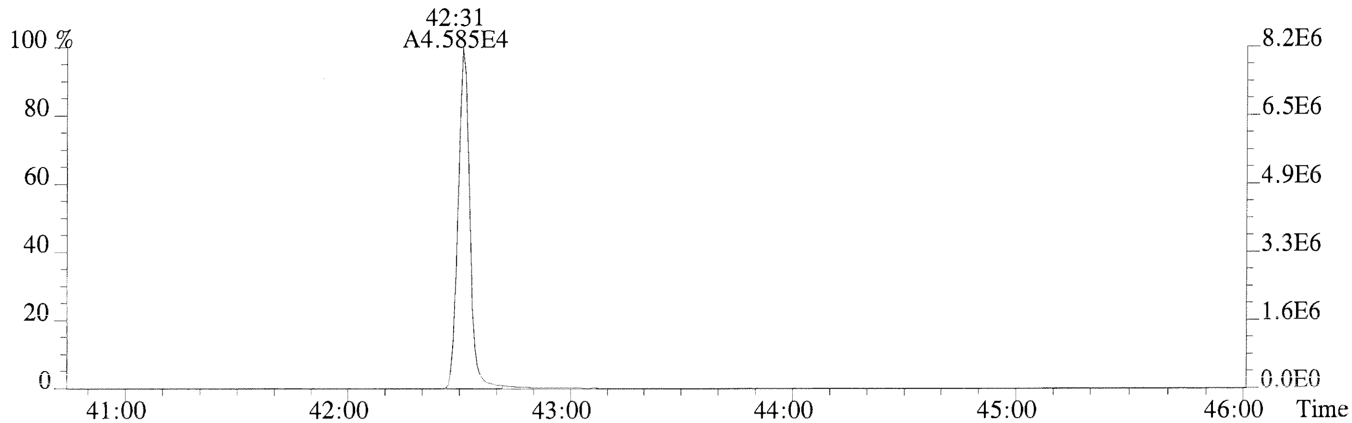
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



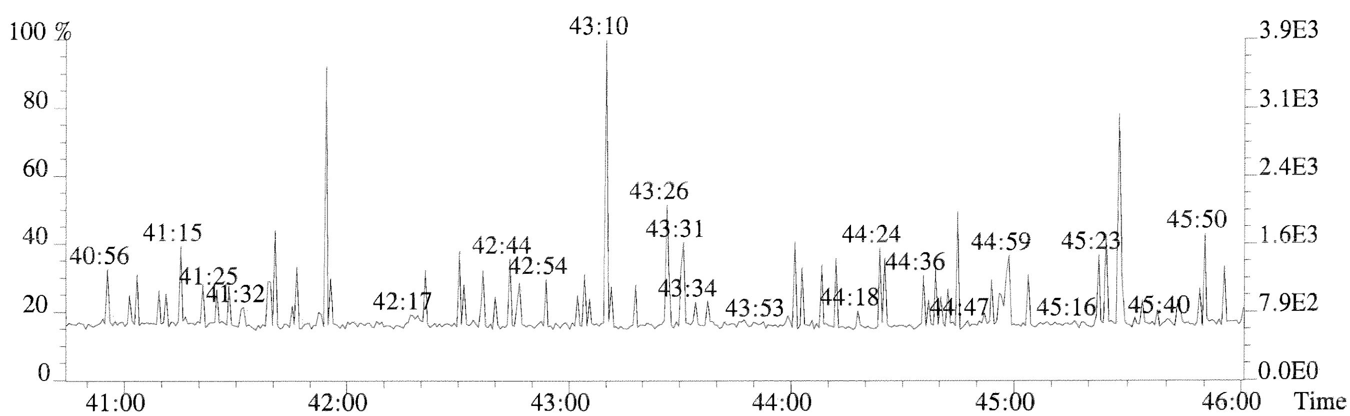
File:P230733 #1-485 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,104.0,0.40%,F,T)



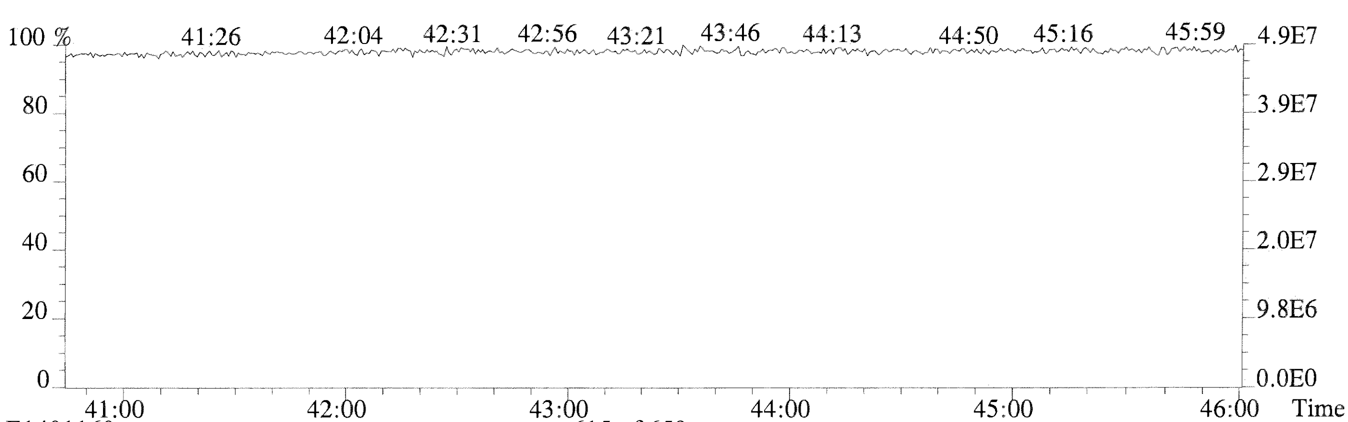
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



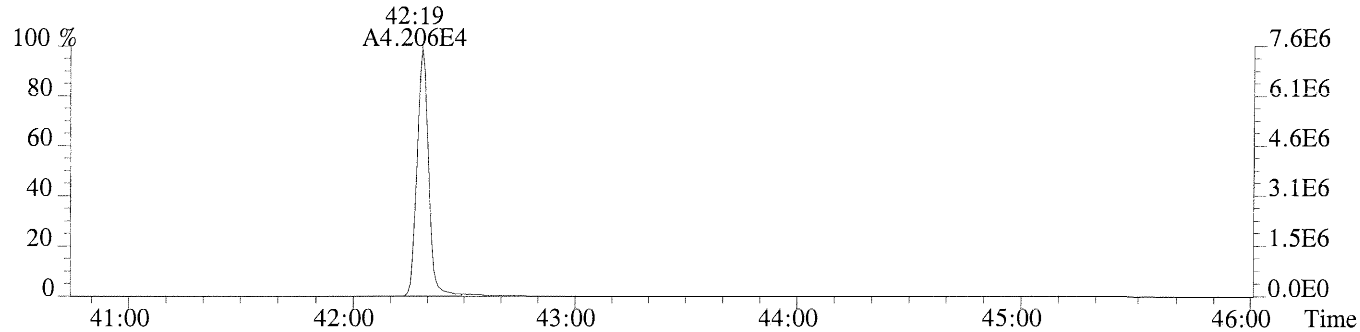
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



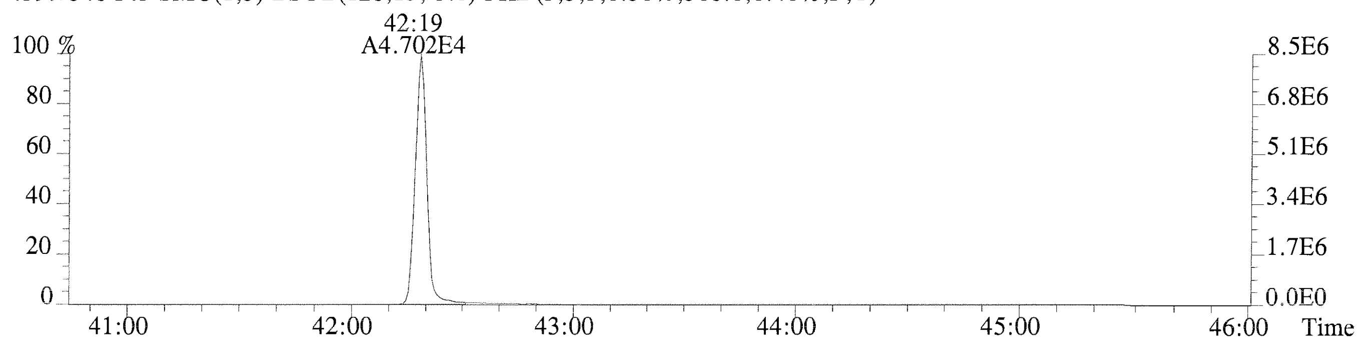
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



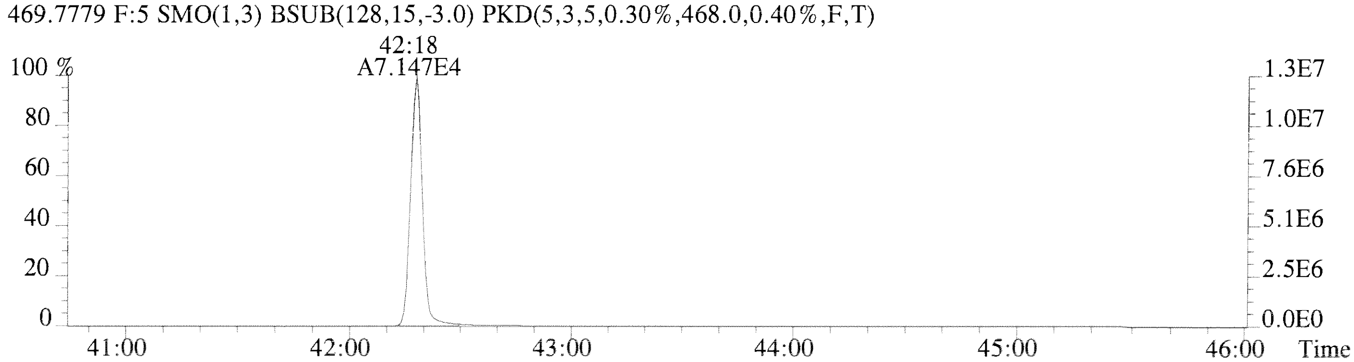
File:P230733 #1-485 Acq:24-AUG-2014 13:46:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



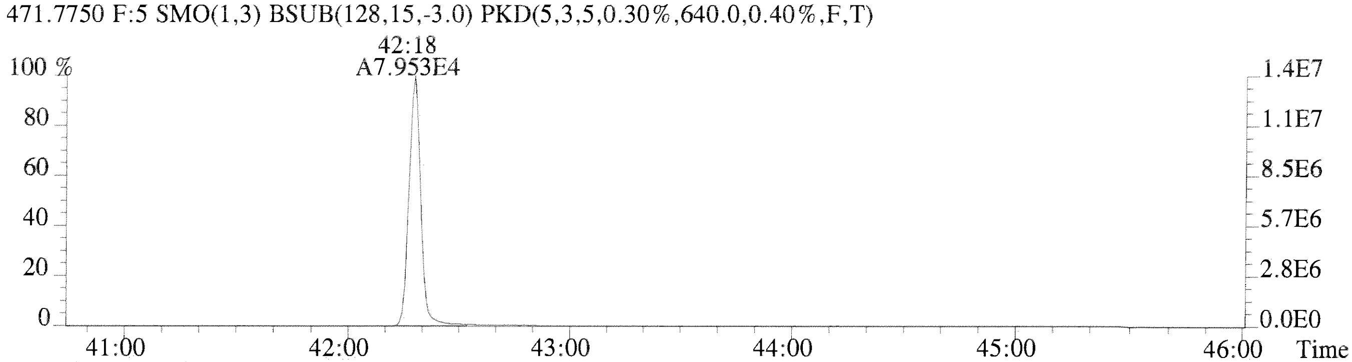
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



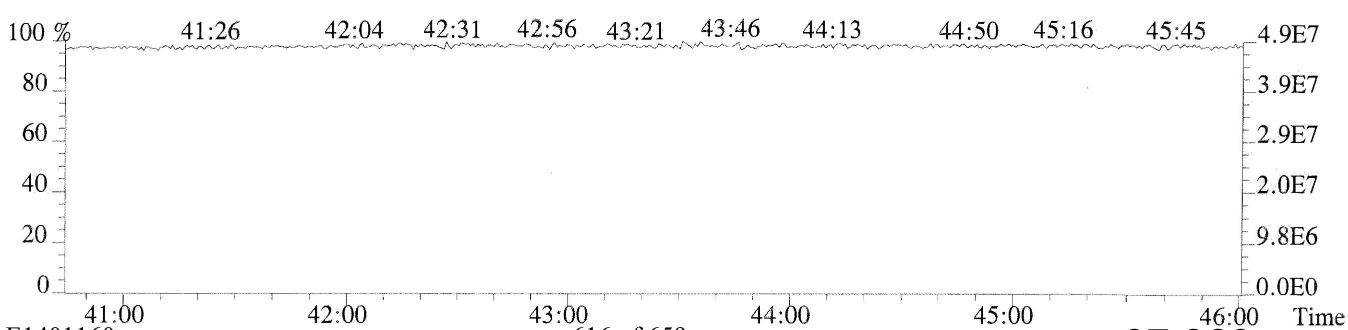
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CS4

Run #5 Filename P230734 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 14:34:24
Processed: 25-AUG-14 11:37:41 LAB. ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	2.471e+04	3.231e+04	0.76	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	2.279e+05	1.474e+05	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	2.144e+05	1.391e+05	1.54	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.842e+05	1.476e+05	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	1.901e+05	1.527e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.817e+05	1.468e+05	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.343e+05	1.100e+05	1.22	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	1.448e+05	1.411e+05	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	9.292e+04	8.956e+04	1.04	yes	no	1.000
10	Unk	OCDF	42:32	1.500e+05	1.663e+05	0.90	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:07	1.812e+04	2.367e+04	0.77	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	1.541e+05	9.662e+04	1.59	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.353e+05	1.074e+05	1.26	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:51	1.370e+05	1.091e+05	1.26	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	1.424e+05	1.137e+05	1.25	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	1.066e+05	1.028e+05	1.04	yes	no	1.000
17	Unk	OCDD	42:19	1.463e+05	1.638e+05	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	6.314e+04	7.869e+04	0.80	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.104e+05	7.012e+04	1.57	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.116e+05	7.003e+04	1.59	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	4.643e+04	9.058e+04	0.51	yes	yes	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	5.159e+04	1.006e+05	0.51	yes	yes	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	4.929e+04	9.619e+04	0.51	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	3.667e+04	7.025e+04	0.52	yes	no	1.009
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	3.153e+04	7.193e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	2.167e+04	4.911e+04	0.44	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:05	4.320e+04	5.469e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:39	7.658e+04	4.829e+04	1.59	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	6.070e+04	4.757e+04	1.28	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	6.115e+04	4.830e+04	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	5.000e+04	4.681e+04	1.07	yes	no	1.066
32	IS	13C-OCDD	42:18	6.151e+04	6.761e+04	0.91	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	4.355e+04	5.472e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	6.651e+04	5.234e+04	1.27	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	4.236e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CS4

Run #5 Filename P230734 Samp: 1 Inj: 1 Acquired: 24-AUG-14 14:34:24
Processed: 25-AUG-14 11:37:41 LAB. ID: D12-90-3D

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.08e+06	3.12e+02	1.6e+04	6.75e+06	1.83e+03	3.7e+03
2	1,2,3,7,8-PeCDF	4.31e+07	4.20e+02	1.0e+05	2.78e+07	1.94e+03	1.4e+04
3	2,3,4,7,8-PeCDF	4.30e+07	4.20e+02	1.0e+05	2.76e+07	1.94e+03	1.4e+04
4	1,2,3,4,7,8-HxCDF	3.98e+07	1.15e+03	3.5e+04	3.16e+07	6.64e+02	4.8e+04
5	1,2,3,6,7,8-HxCDF	4.06e+07	1.15e+03	3.5e+04	3.28e+07	6.64e+02	4.9e+04
6	2,3,4,6,7,8-HxCDF	4.06e+07	1.15e+03	3.5e+04	3.24e+07	6.64e+02	4.9e+04
7	1,2,3,7,8,9-HxCDF	2.98e+07	1.15e+03	2.6e+04	2.38e+07	6.64e+02	3.6e+04
8	1,2,3,4,6,7,8-HpCDF	3.27e+07	1.28e+04	2.6e+03	3.14e+07	7.37e+03	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.89e+07	1.28e+04	1.5e+03	1.81e+07	7.37e+03	2.5e+03
10	OCDF	2.68e+07	4.32e+02	6.2e+04	2.95e+07	1.11e+03	2.7e+04
11	2,3,7,8-TCDD	3.82e+06	7.40e+02	5.2e+03	4.99e+06	7.88e+02	6.3e+03
12	1,2,3,7,8-PeCDD	3.09e+07	1.06e+03	2.9e+04	1.96e+07	9.60e+01	2.0e+05
13	1,2,3,4,7,8-HxCDD	3.09e+07	4.80e+01	6.4e+05	2.47e+07	4.16e+02	5.9e+04
14	1,2,3,6,7,8-HxCDD	3.00e+07	4.80e+01	6.2e+05	2.40e+07	4.16e+02	5.8e+04
15	1,2,3,7,8,9-HxCDD	3.09e+07	4.80e+01	6.4e+05	2.48e+07	4.16e+02	6.0e+04
16	1,2,3,4,6,7,8-HpCDD	2.31e+07	1.70e+03	1.4e+04	2.23e+07	1.15e+03	1.9e+04
17	OCDD	2.64e+07	6.80e+01	3.9e+05	2.94e+07	6.04e+02	4.9e+04
18	13C-2,3,7,8-TCDF	1.29e+07	1.27e+03	1.0e+04	1.60e+07	9.52e+02	1.7e+04
19	13C-1,2,3,7,8-PeCDF	2.11e+07	1.52e+03	1.4e+04	1.35e+07	7.32e+02	1.8e+04
20	13C-2,3,4,7,8-PeCDF	2.27e+07	1.52e+03	1.5e+04	1.44e+07	7.32e+02	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	9.96e+06	4.56e+02	2.2e+04	1.94e+07	1.26e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	1.10e+07	4.56e+02	2.4e+04	2.15e+07	1.26e+03	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	1.10e+07	4.56e+02	2.4e+04	2.10e+07	1.26e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	8.04e+06	4.56e+02	1.8e+04	1.52e+07	1.26e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.07e+06	3.46e+03	2.0e+03	1.62e+07	4.17e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.38e+06	3.46e+03	1.3e+03	9.92e+06	4.17e+03	2.4e+03
27	13C-2,3,7,8-TCDD	9.31e+06	4.59e+03	2.0e+03	1.19e+07	1.78e+03	6.7e+03
28	13C-1,2,3,7,8-PeCDD	1.55e+07	7.72e+02	2.0e+04	9.80e+06	4.24e+02	2.3e+04
29	13C-1,2,3,4,7,8-HxCDD	1.38e+07	1.18e+03	1.2e+04	1.09e+07	5.24e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	1.33e+07	1.18e+03	1.1e+04	1.06e+07	5.24e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.09e+07	1.02e+03	1.1e+04	1.02e+07	6.76e+02	1.5e+04
32	13C-OCDD	1.10e+07	5.44e+02	2.0e+04	1.19e+07	3.48e+02	3.4e+04
33	13C-1,2,3,4-TCDD	9.36e+06	4.59e+03	2.0e+03	1.17e+07	1.78e+03	6.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.42e+07	1.18e+03	1.2e+04	1.13e+07	5.24e+02	2.2e+04
35	37Cl-2,3,7,8-TCDD	8.87e+06	8.08e+02	1.1e+04			

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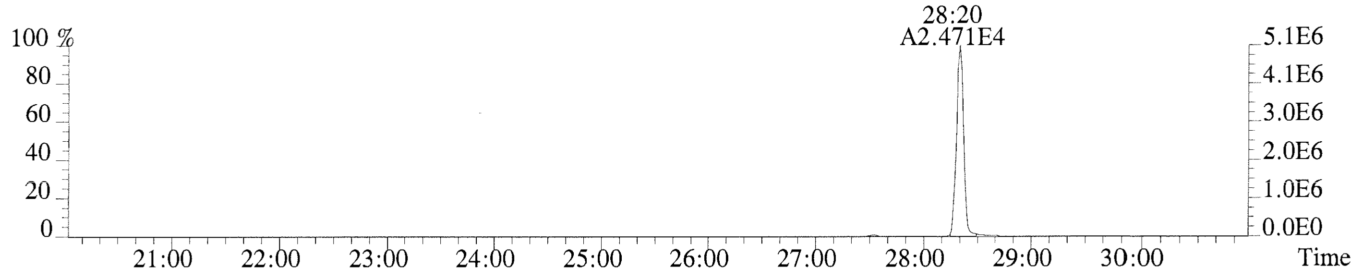
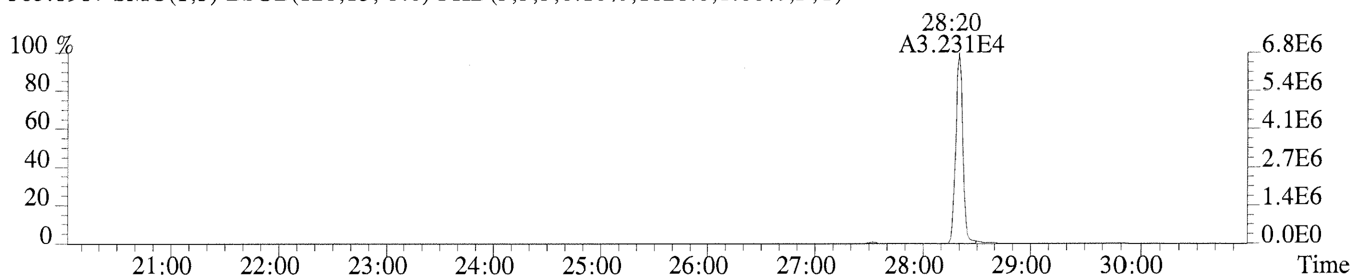
XLSN

File:P230734 #1-687 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

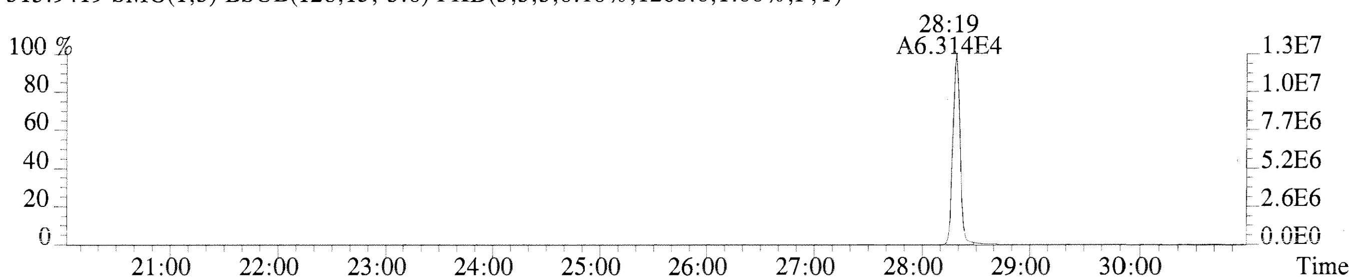
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



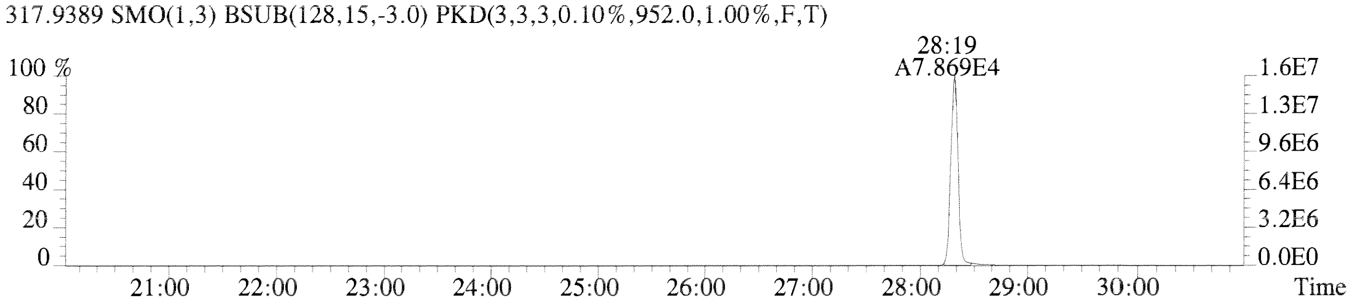
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



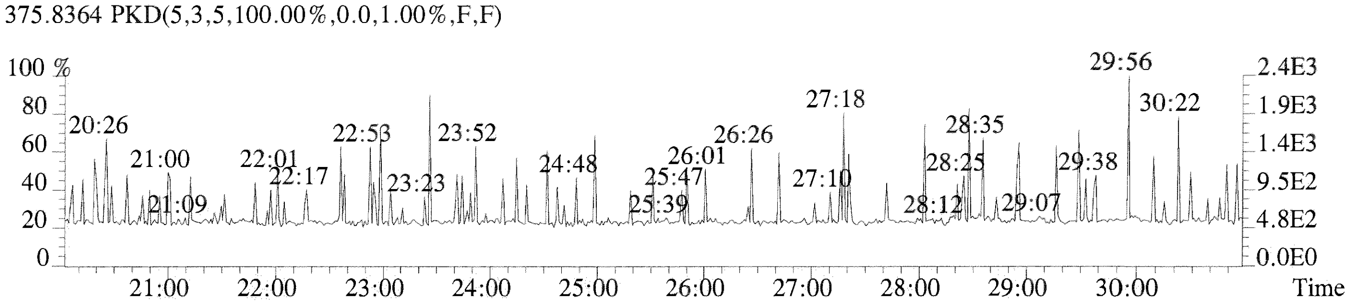
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



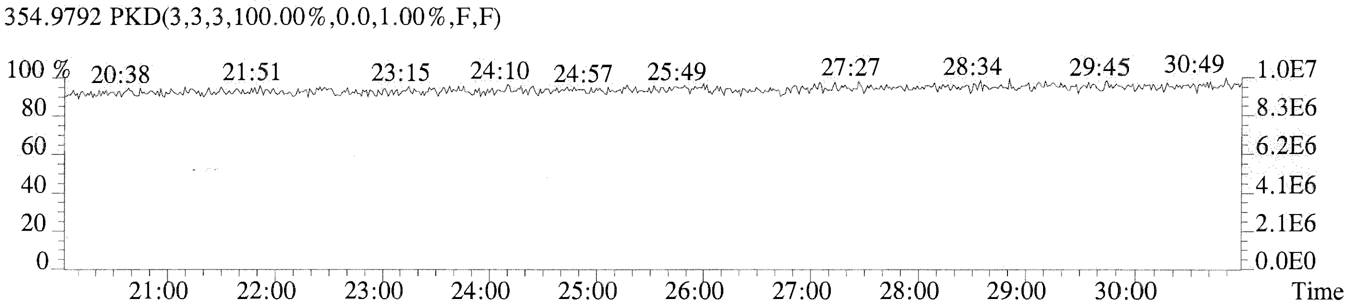
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

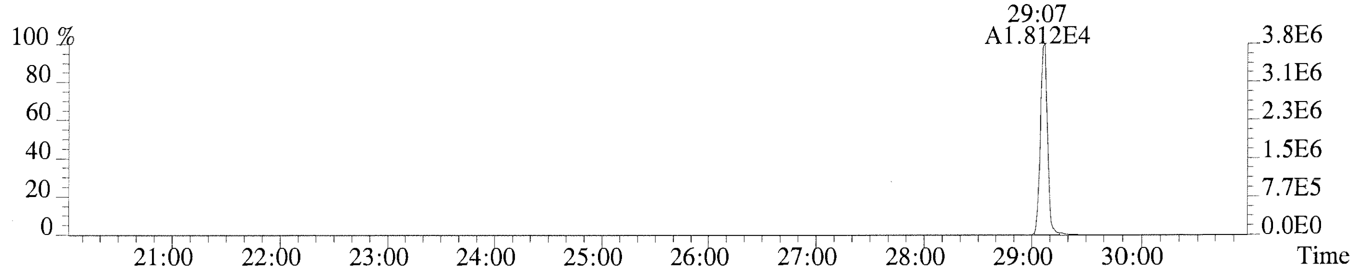


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

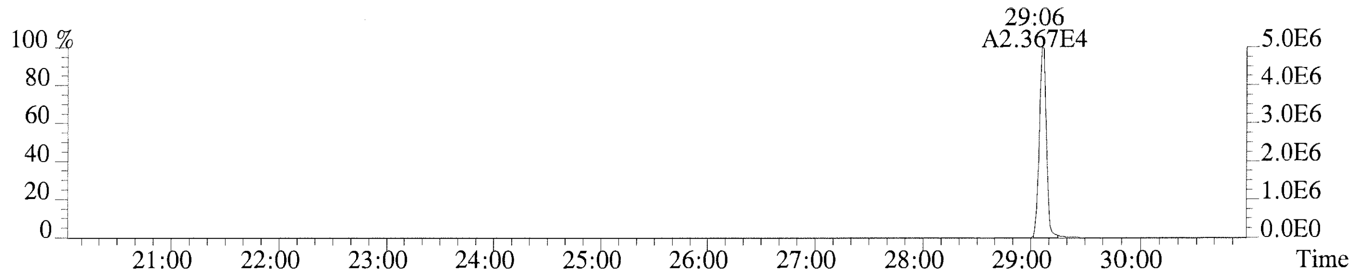


File:P230734 #1-687 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

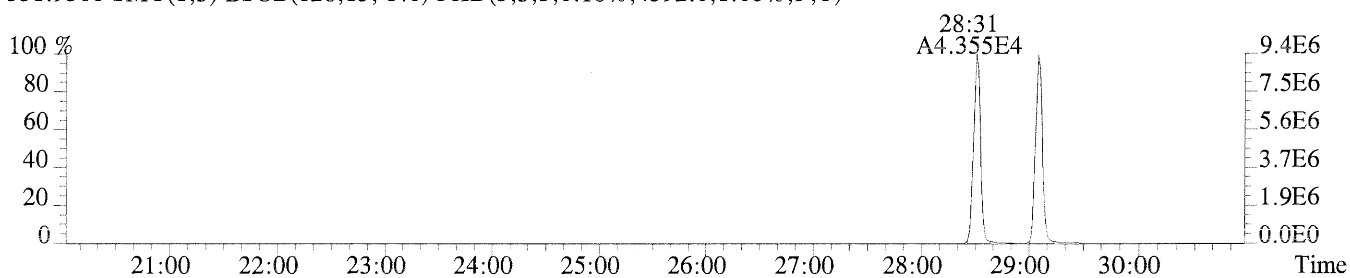
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



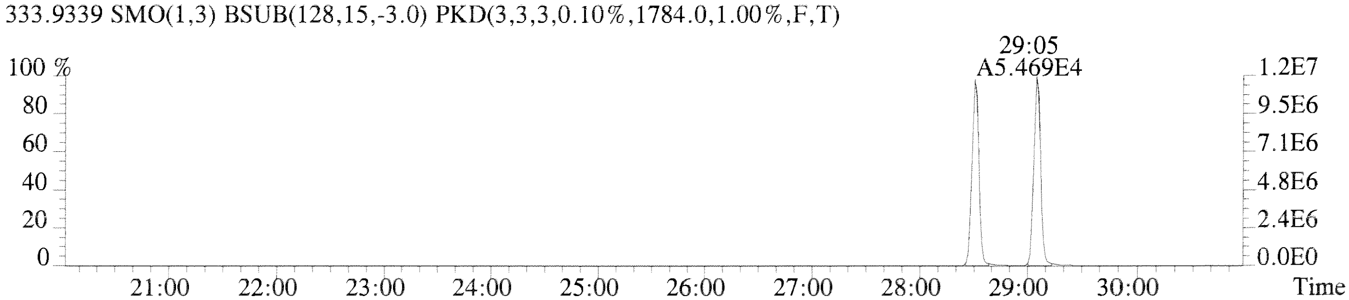
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



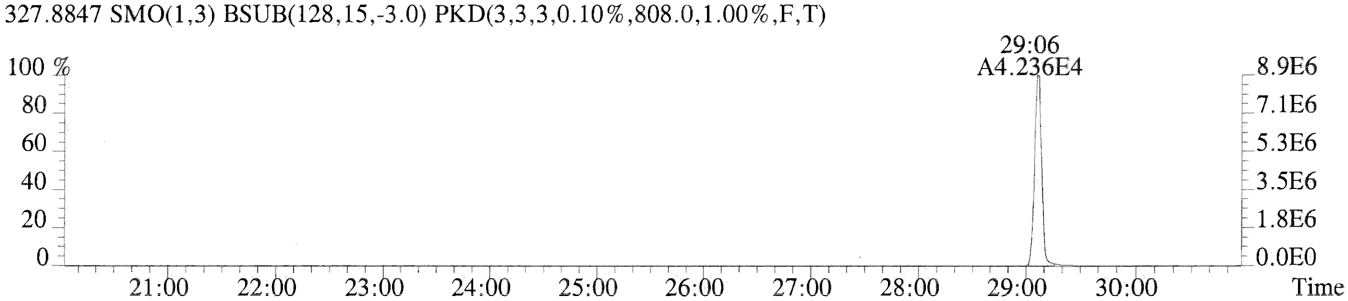
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4592.0,1.00%,F,T)



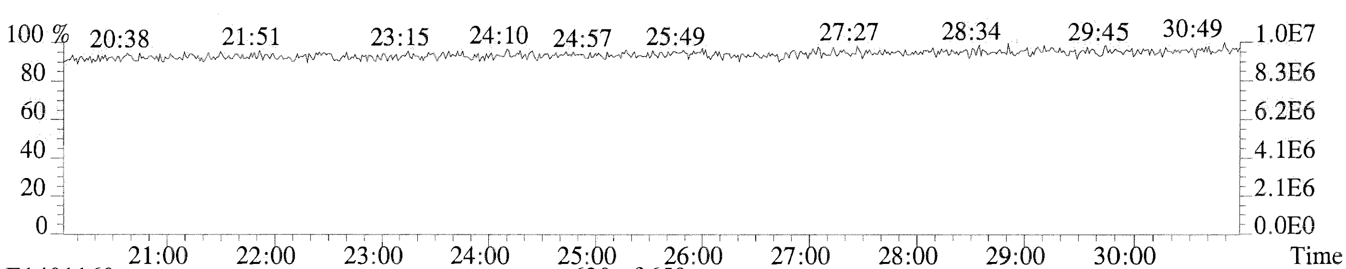
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



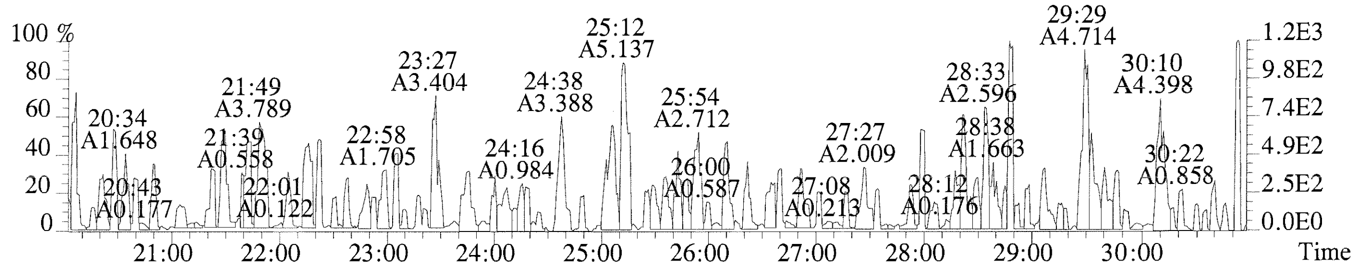
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



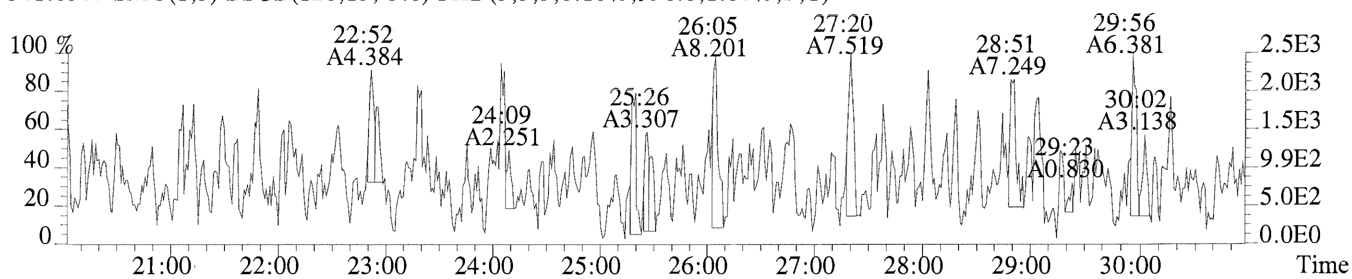
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



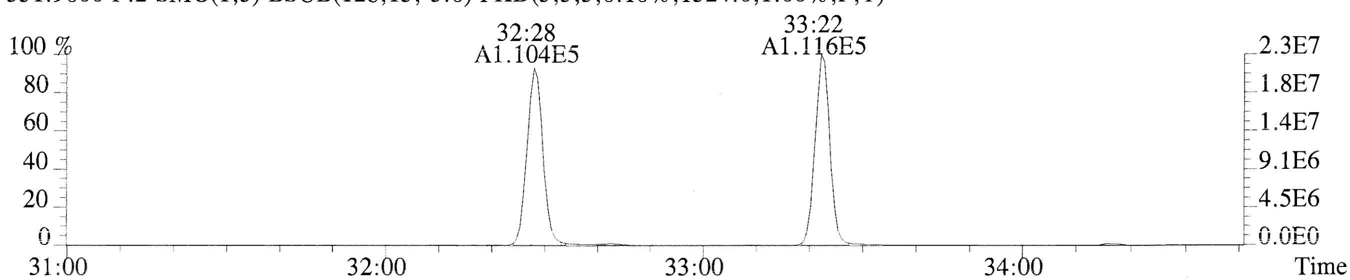
File:P230734 #1-687 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,44.0,1.00%,F,T)



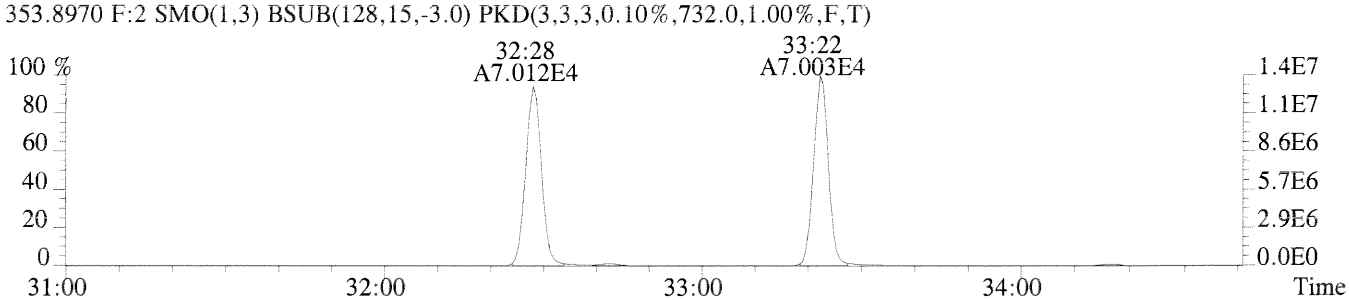
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



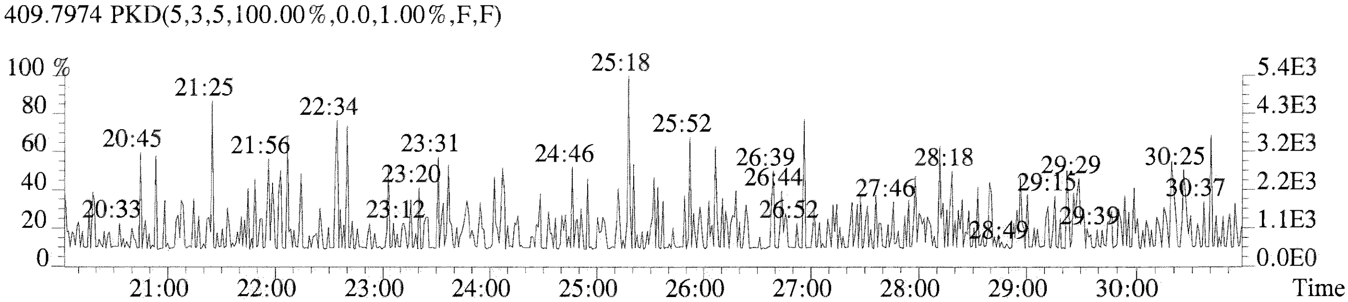
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



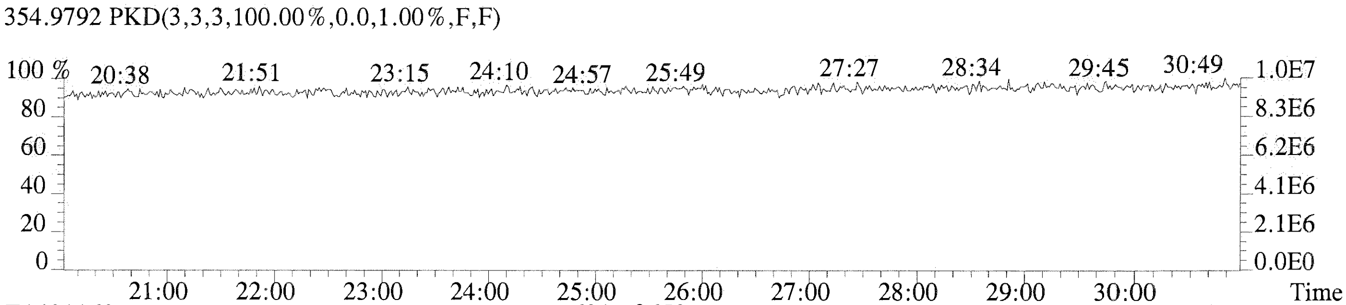
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

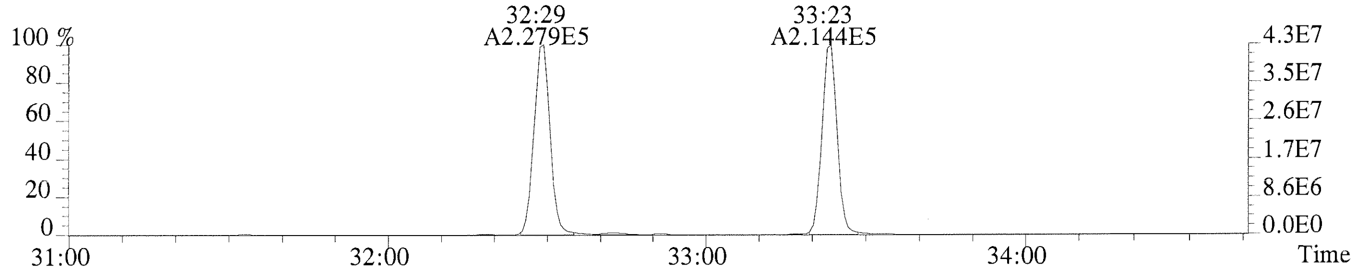


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

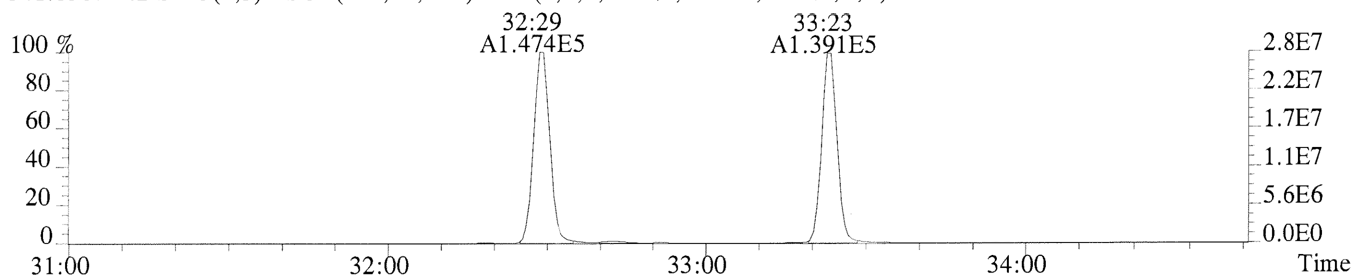


File:P230734 #1-335 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

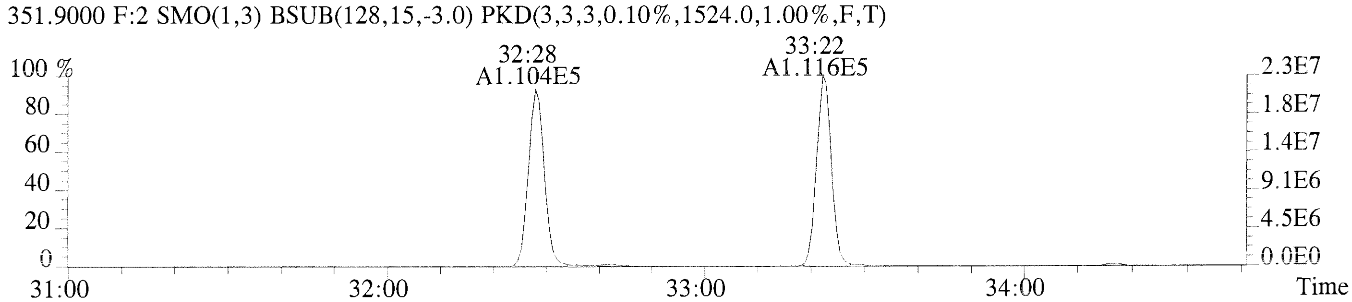
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



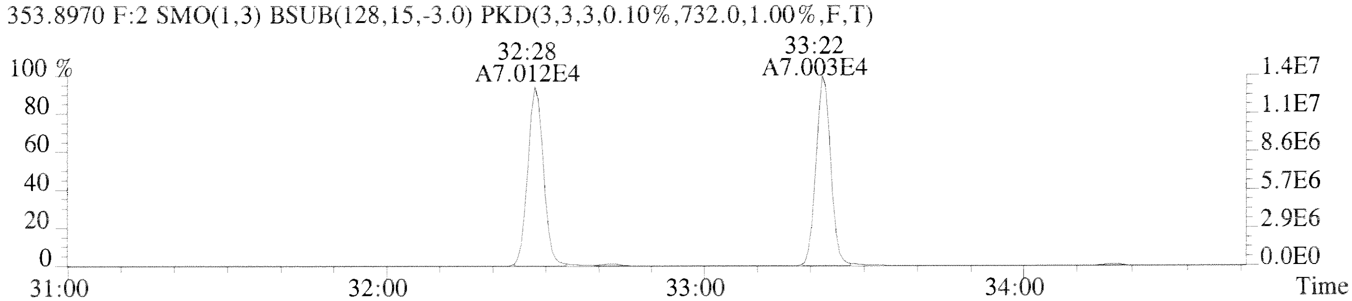
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



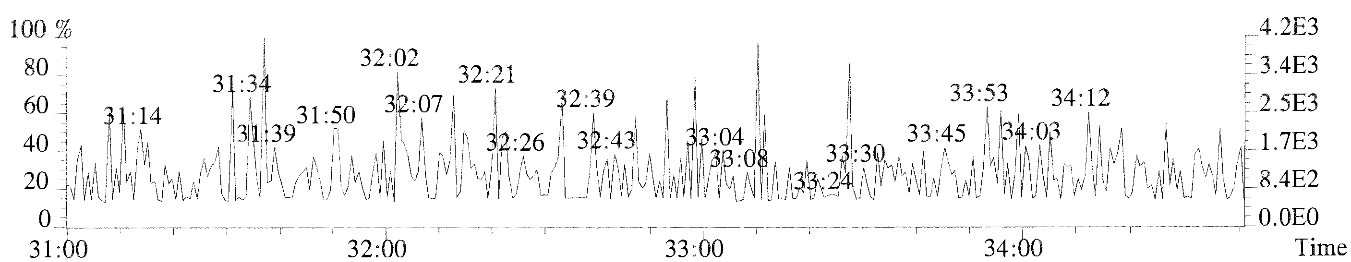
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



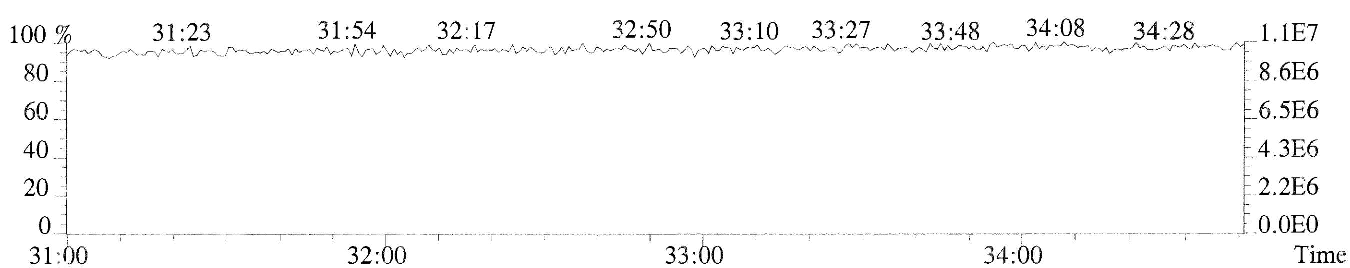
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

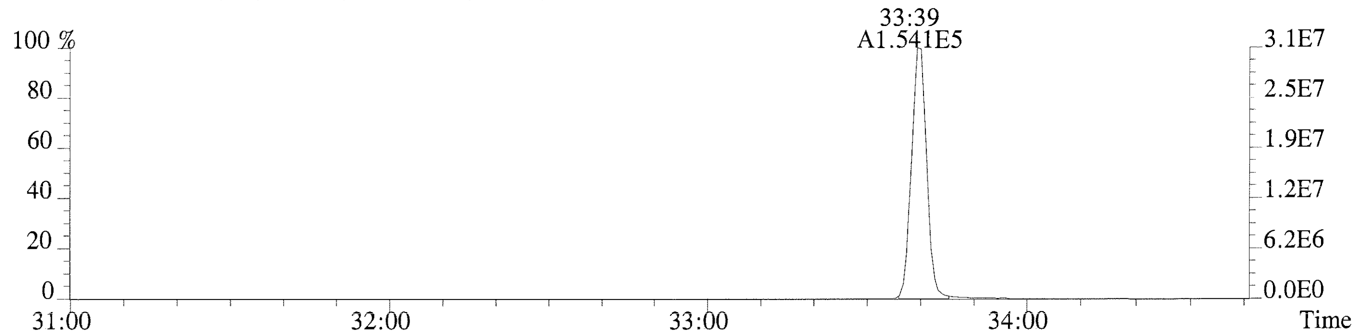


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

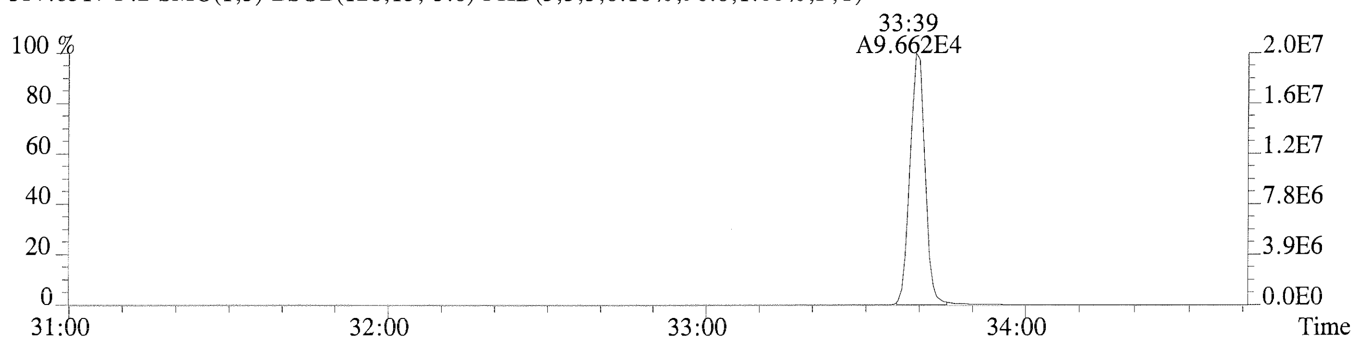


File:P230734 #1-335 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

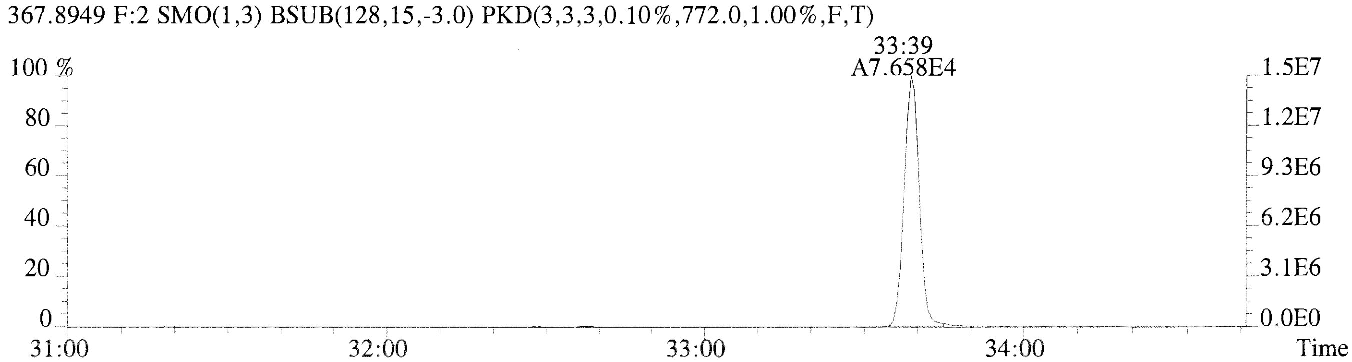
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



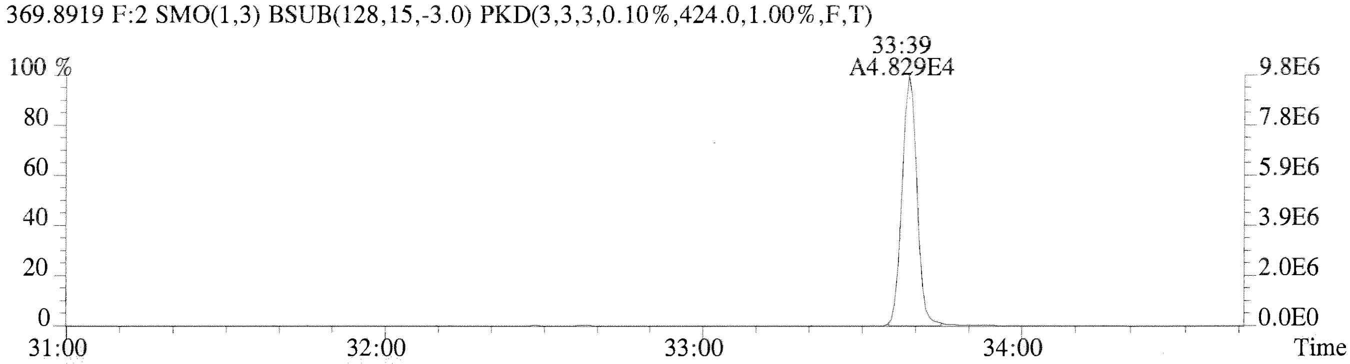
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



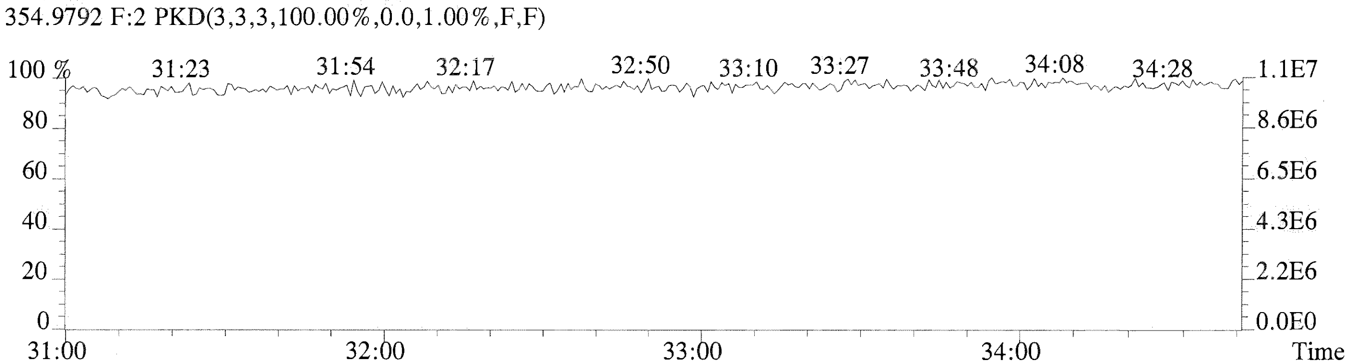
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)

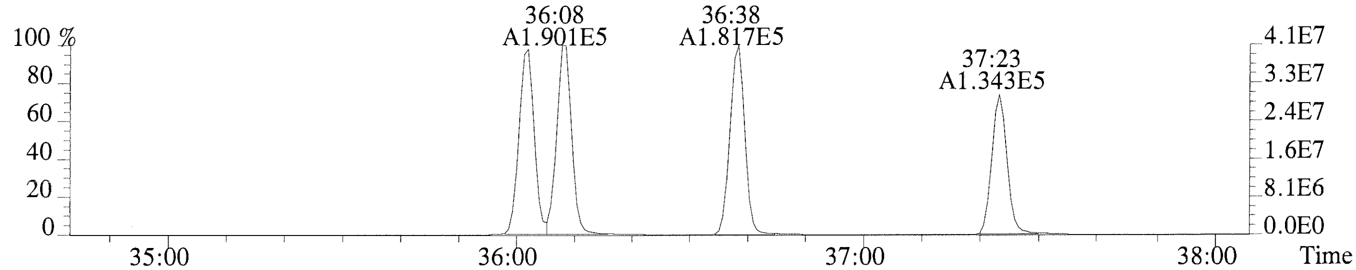


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

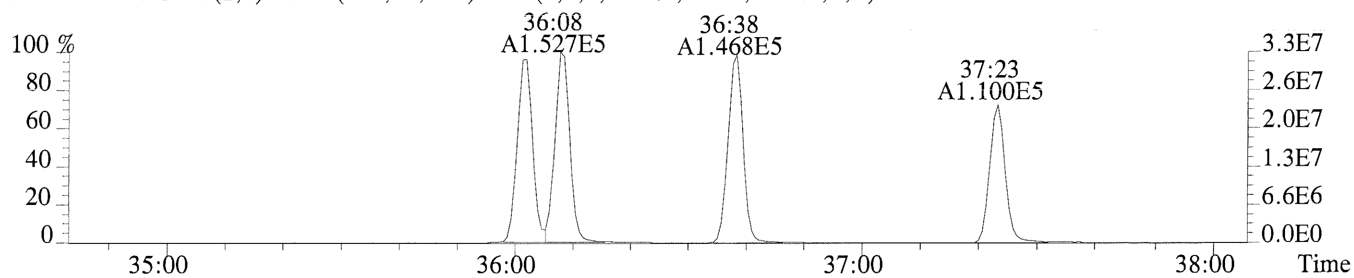


File:P230734 #1-307 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

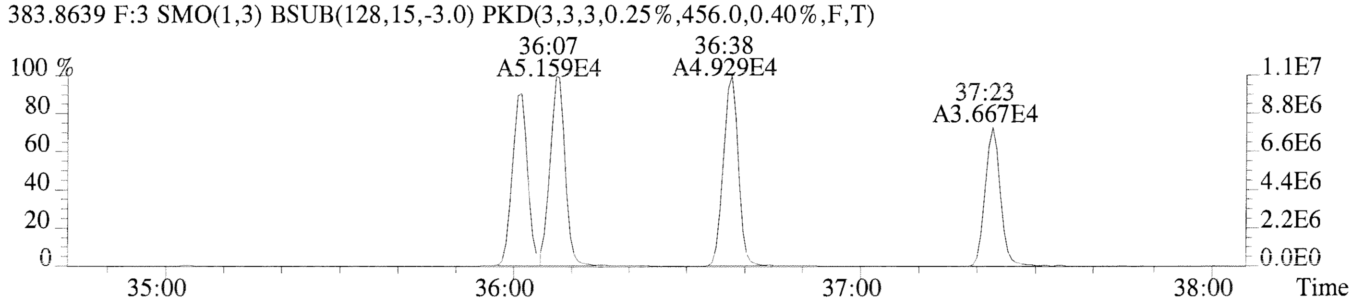
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



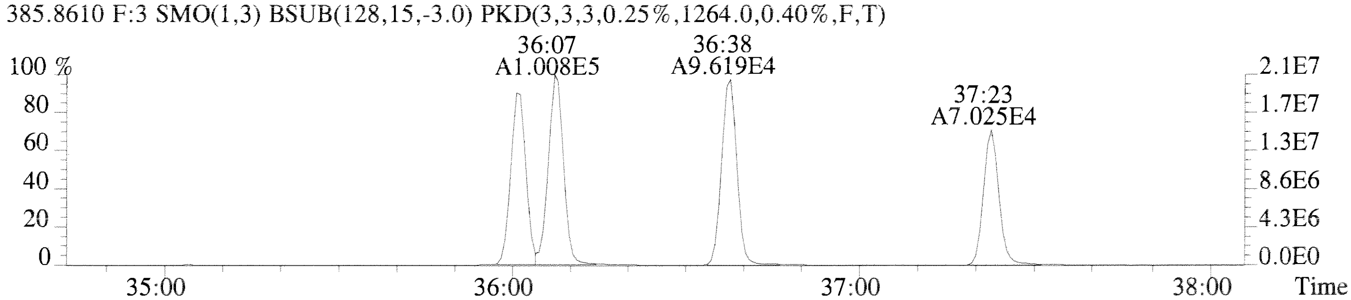
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



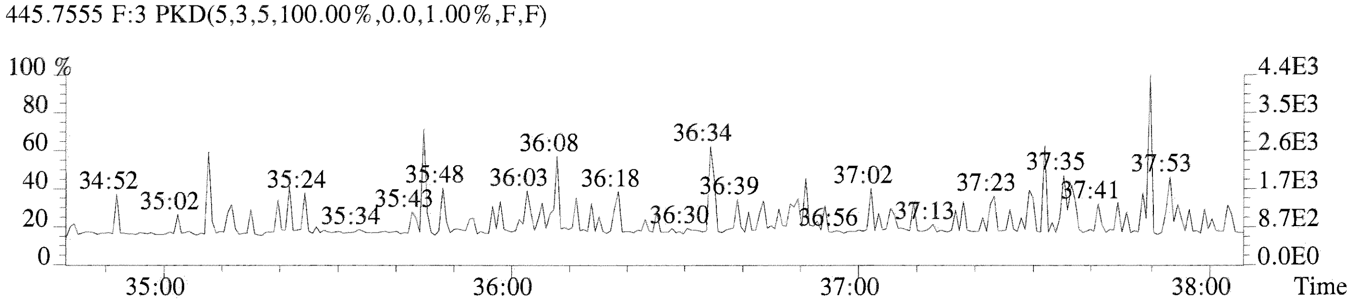
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



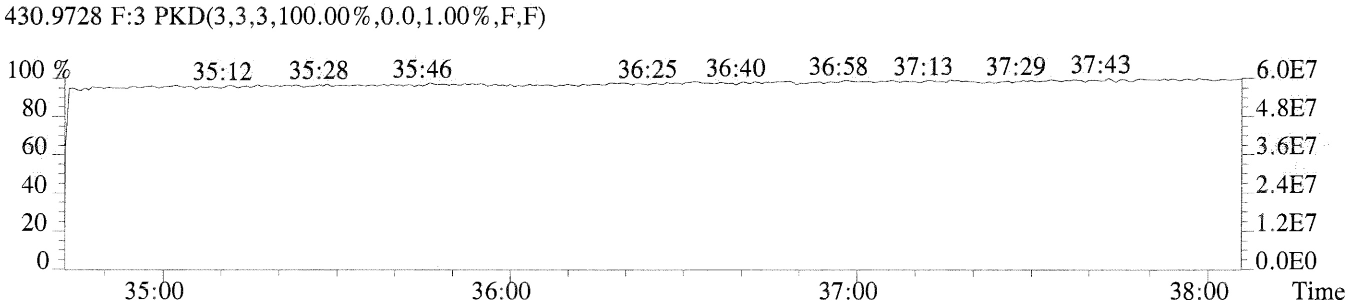
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



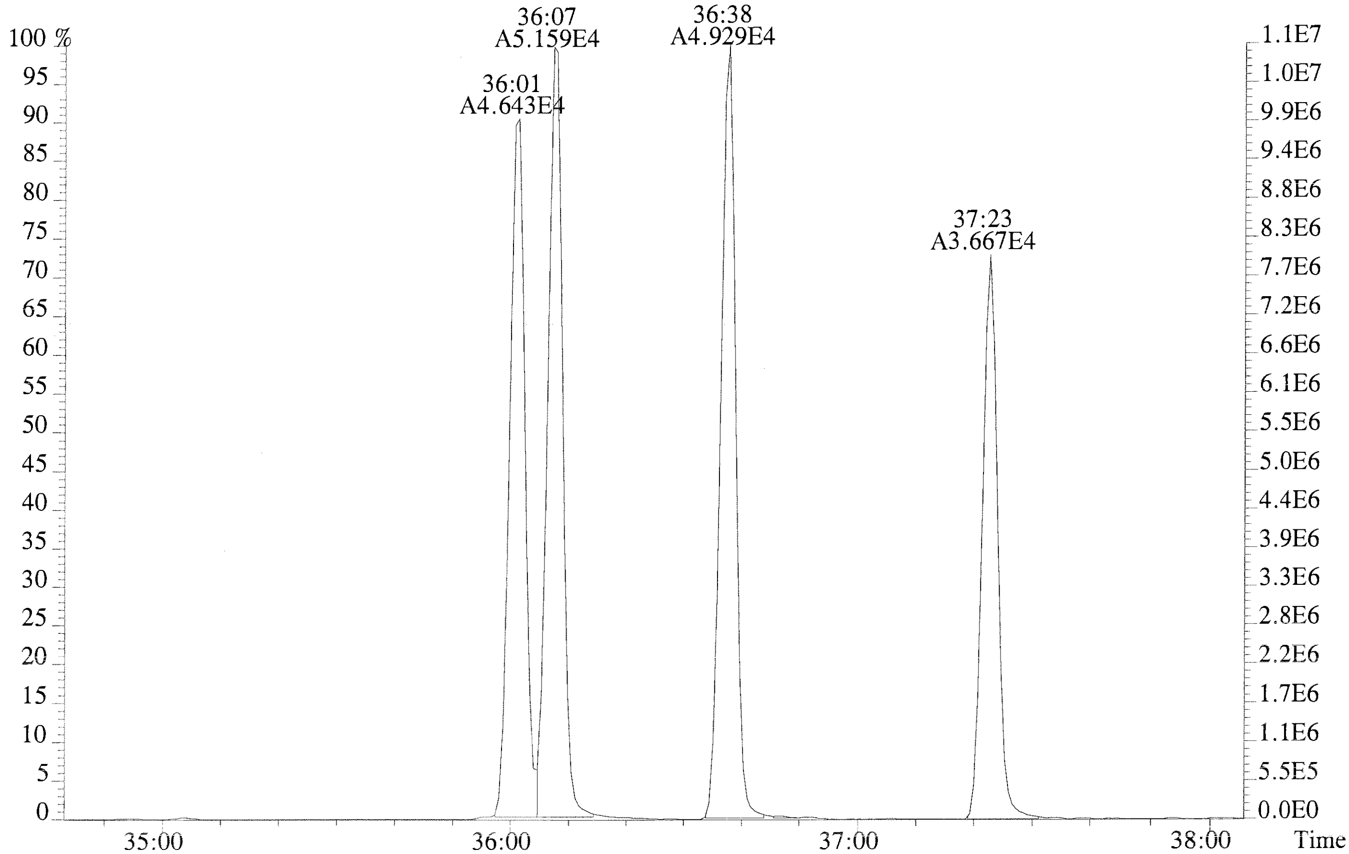
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



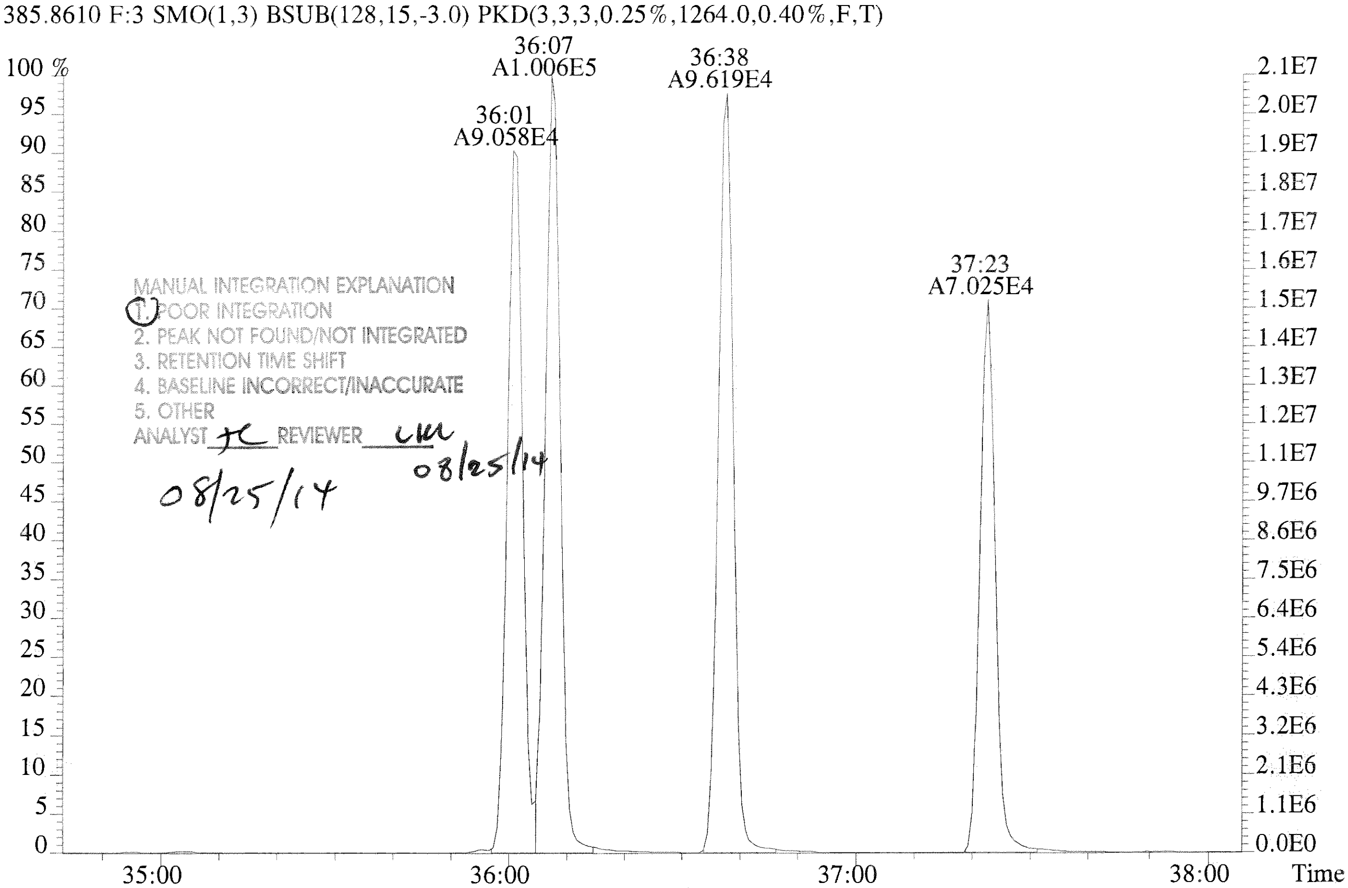
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230734 #1-307 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)

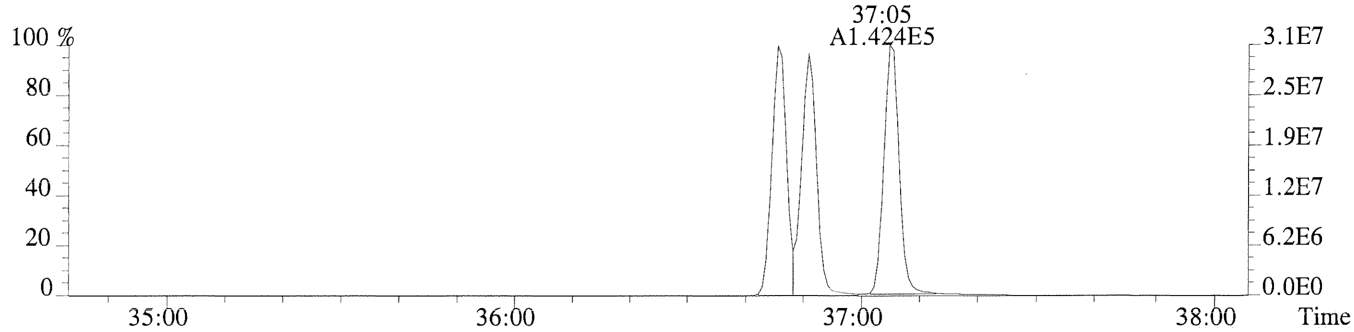


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)

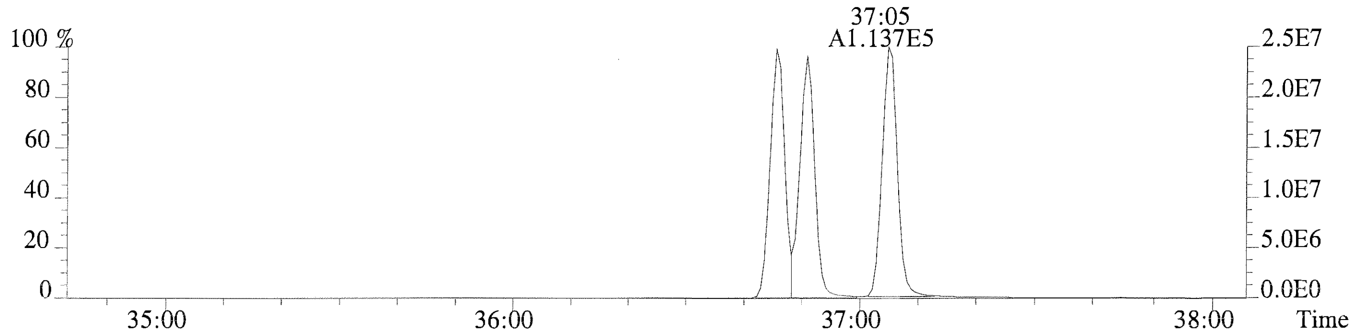


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER UKL
08/25/14 08/25/14

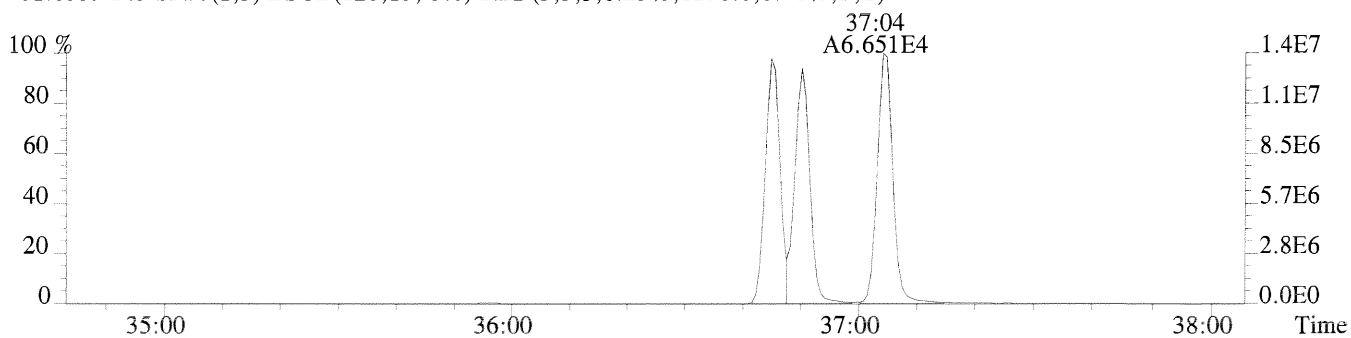
File:P230734 #1-307 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48.0,0.40%,F,T)



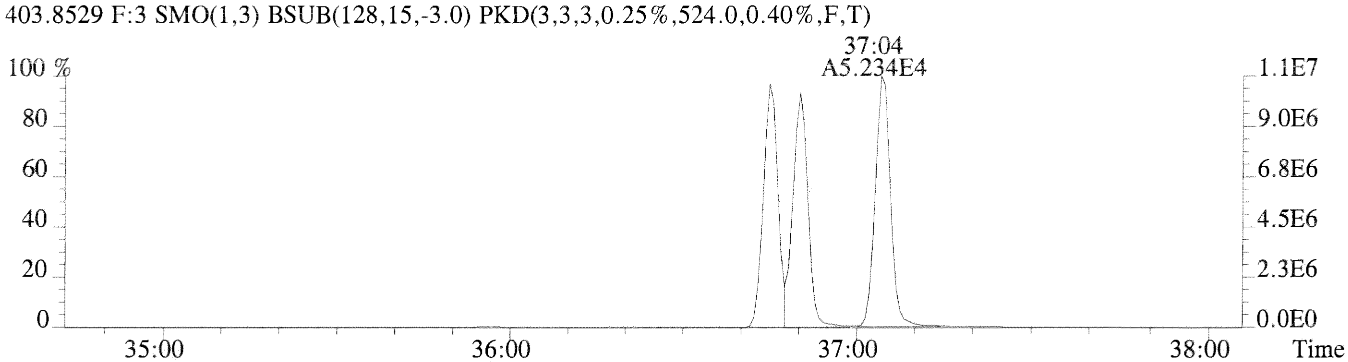
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



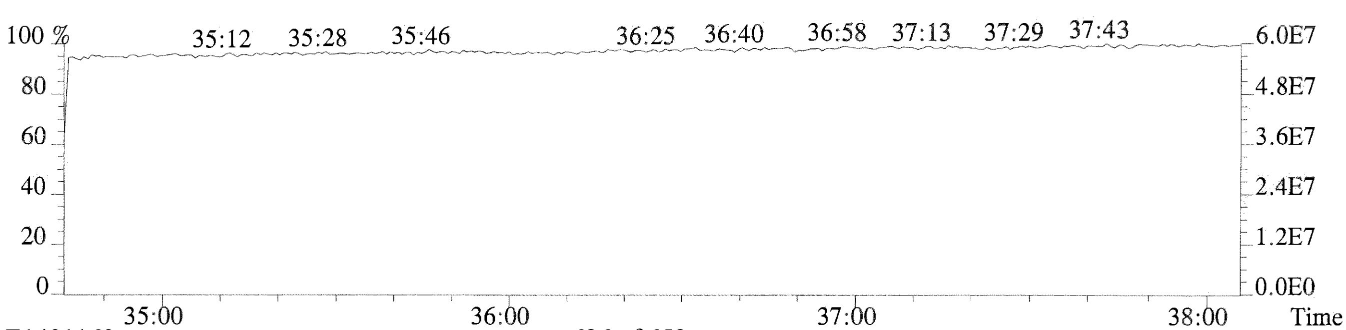
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)

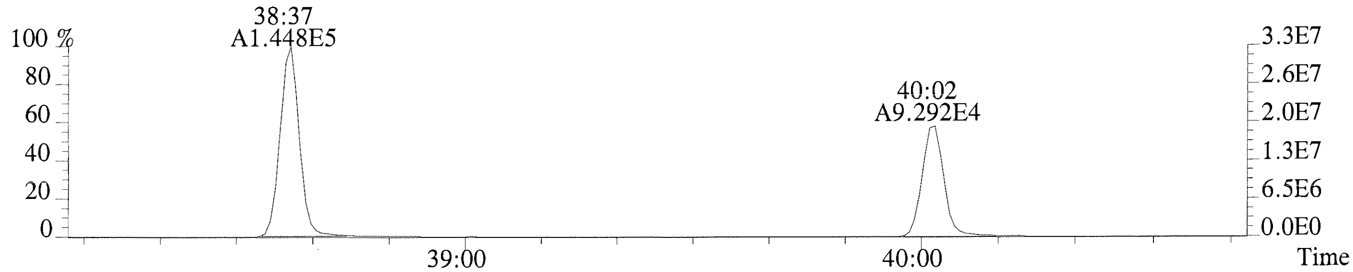


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

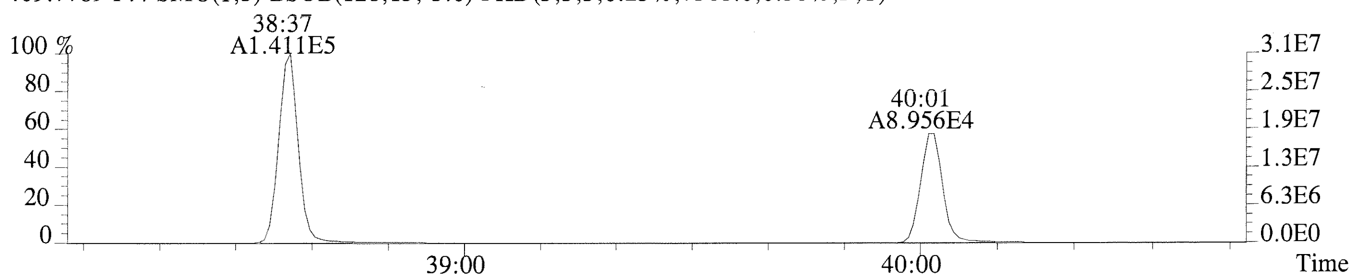


File:P230734 #1-234 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

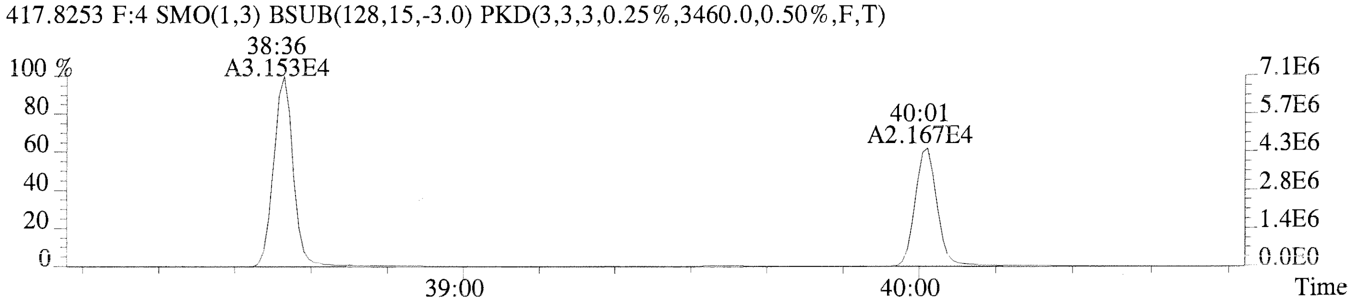
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12768.0,0.50%,F,T)



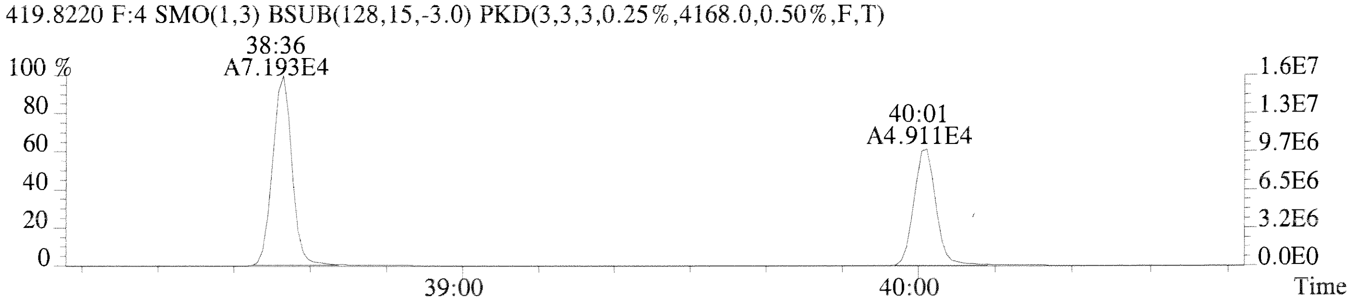
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7368.0,0.50%,F,T)



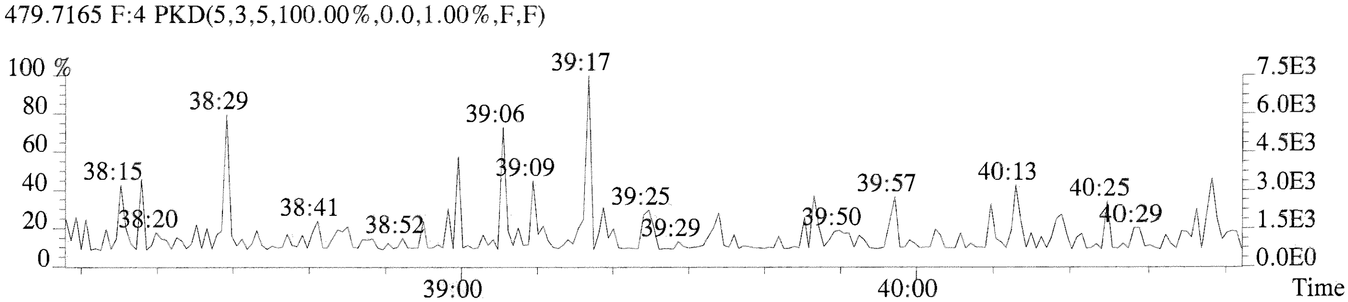
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3460.0,0.50%,F,T)



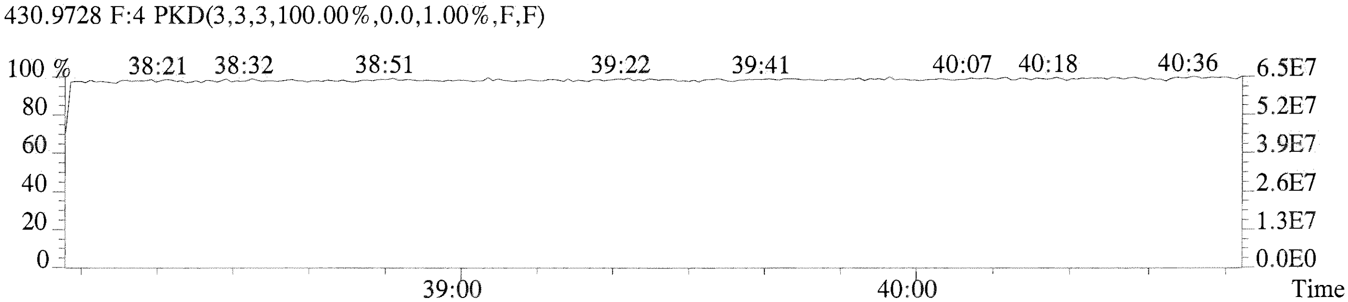
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4168.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

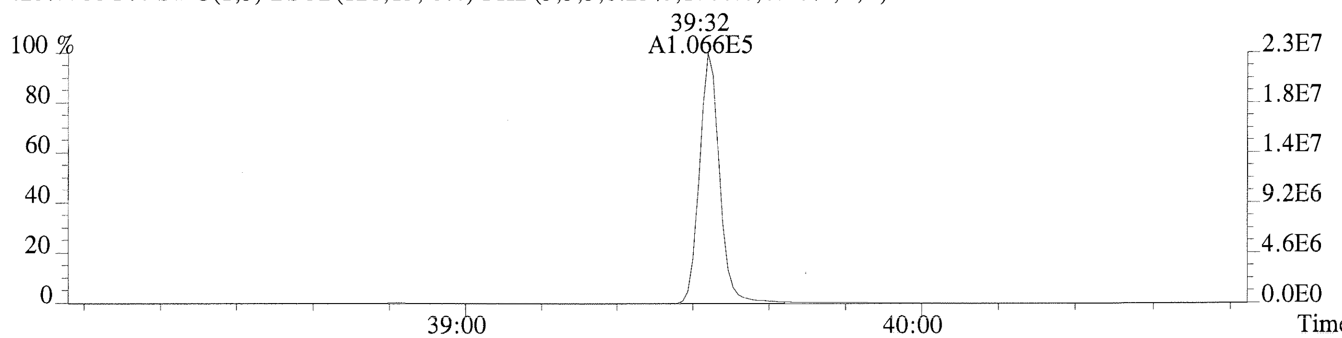


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

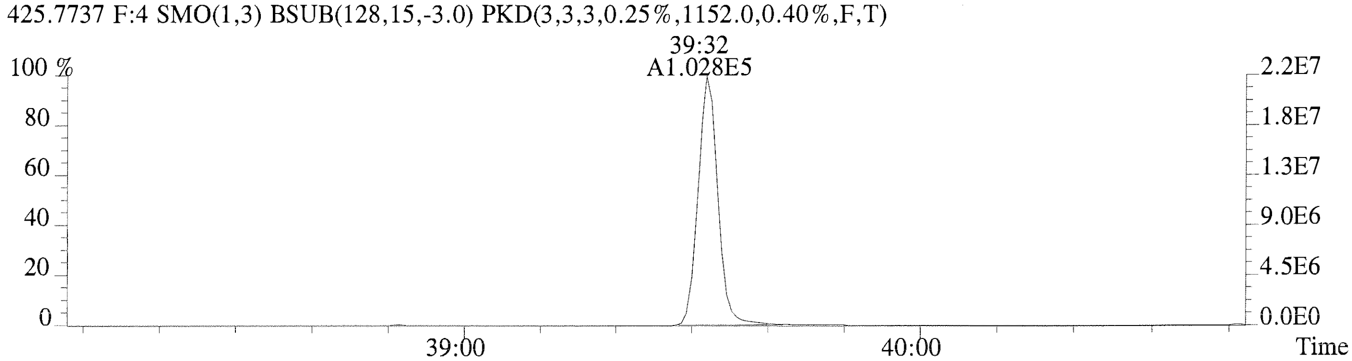


File:P230734 #1-234 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

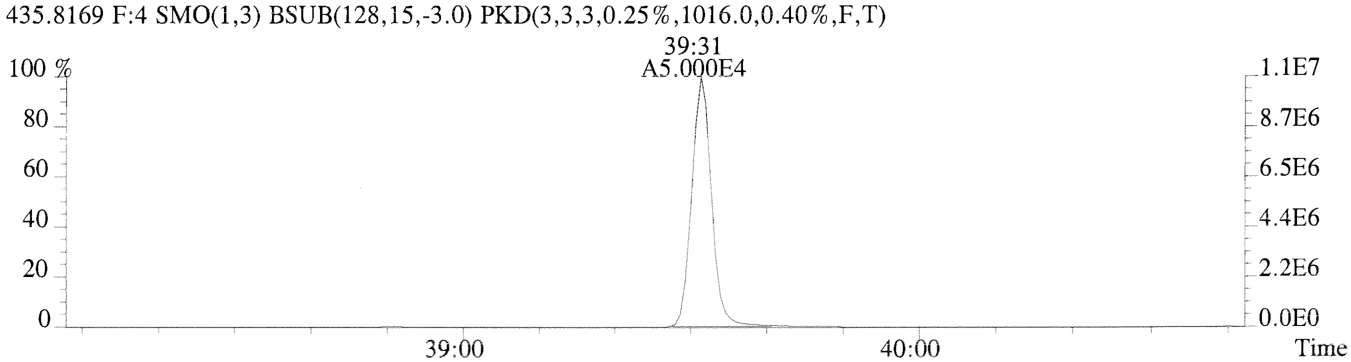
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



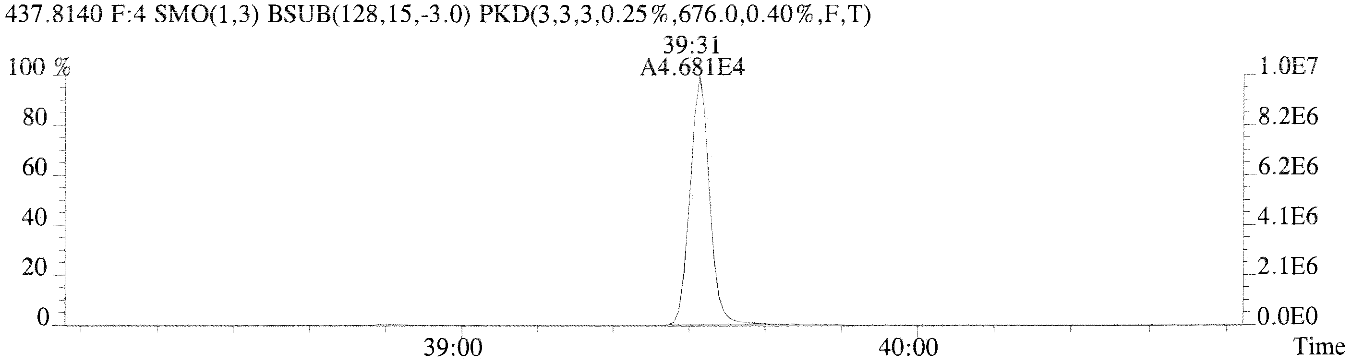
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



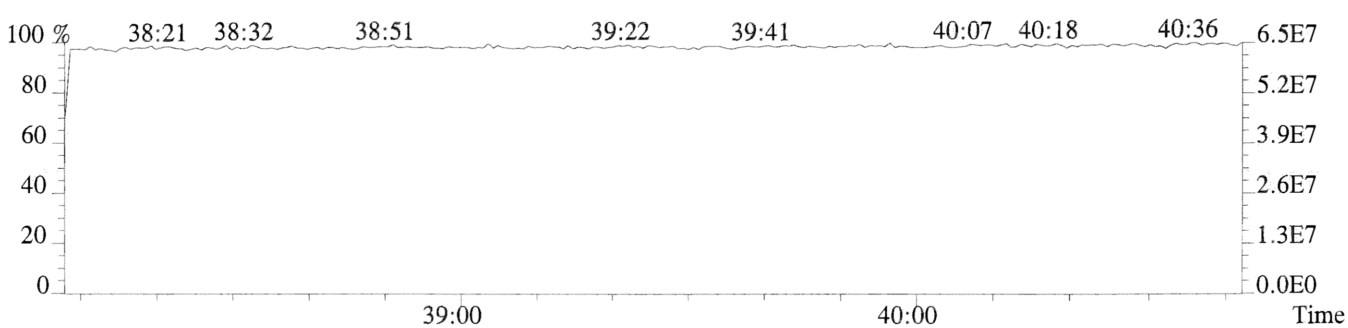
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)

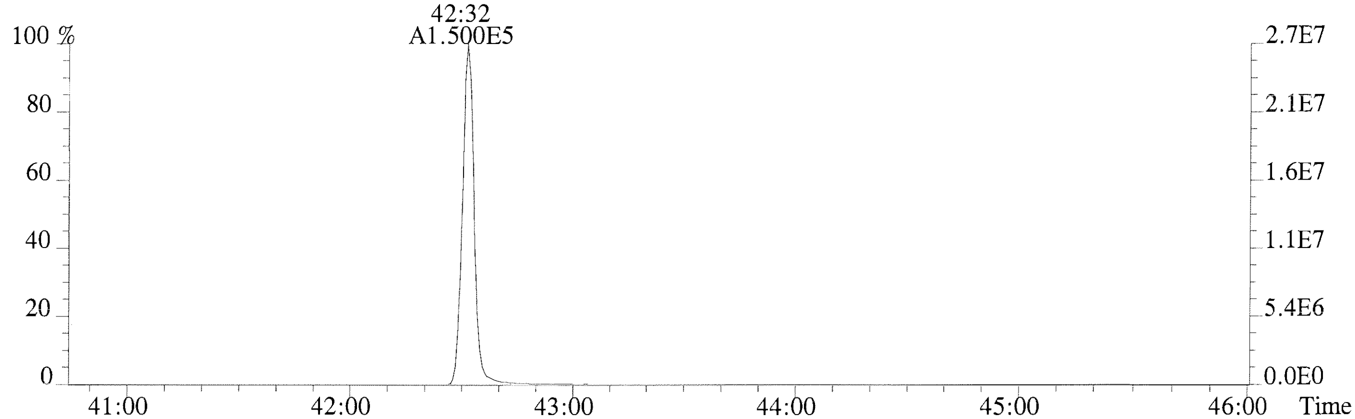


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

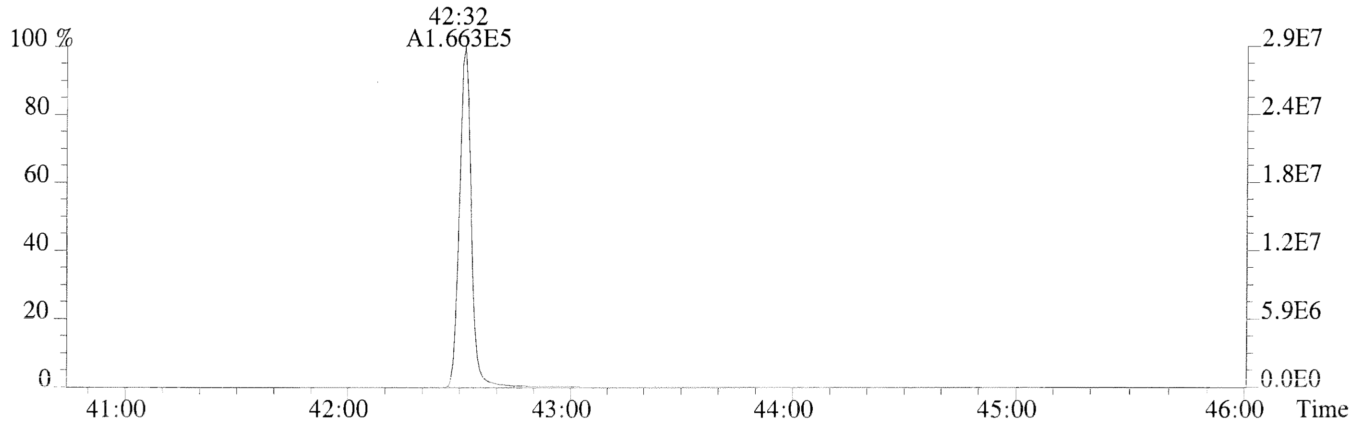


File:P230734 #1-485 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

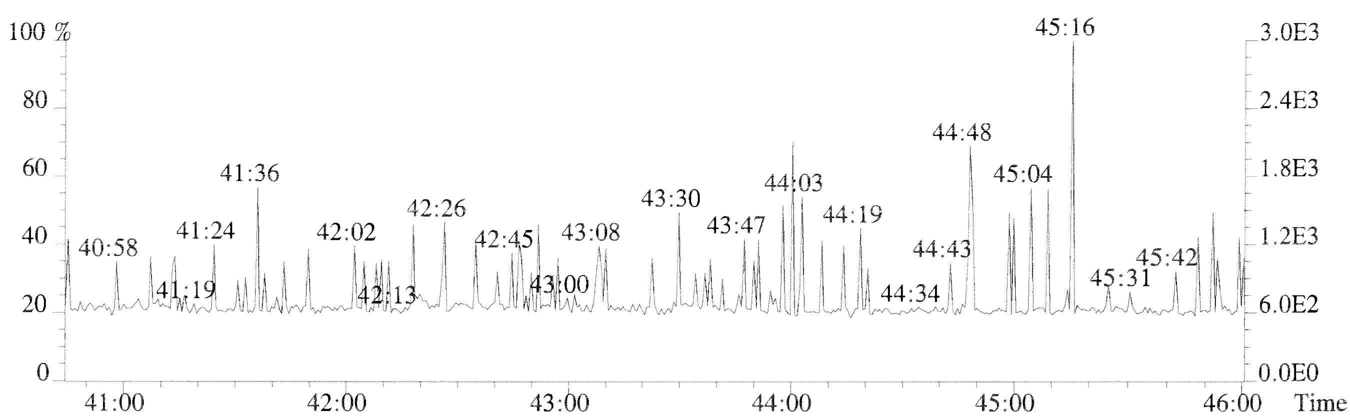
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



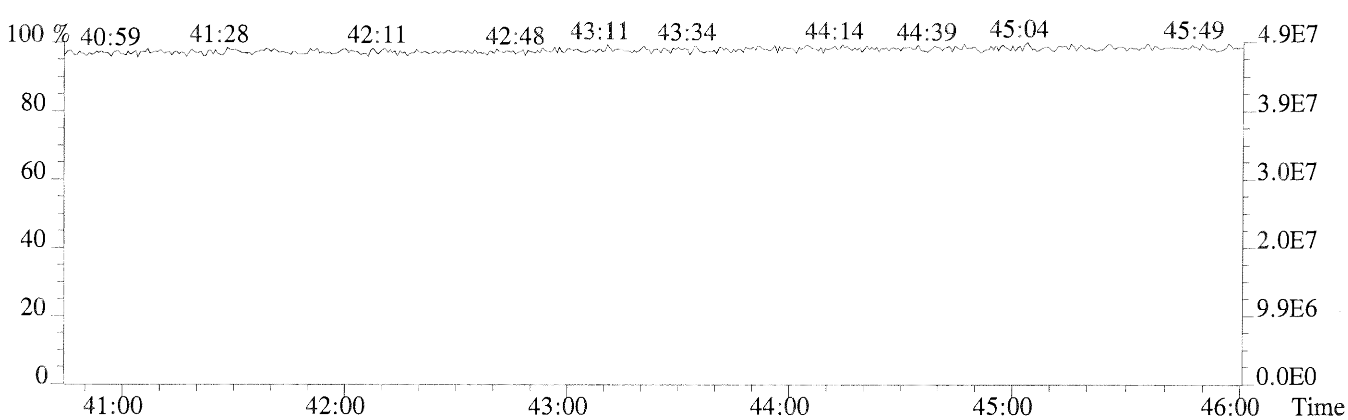
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



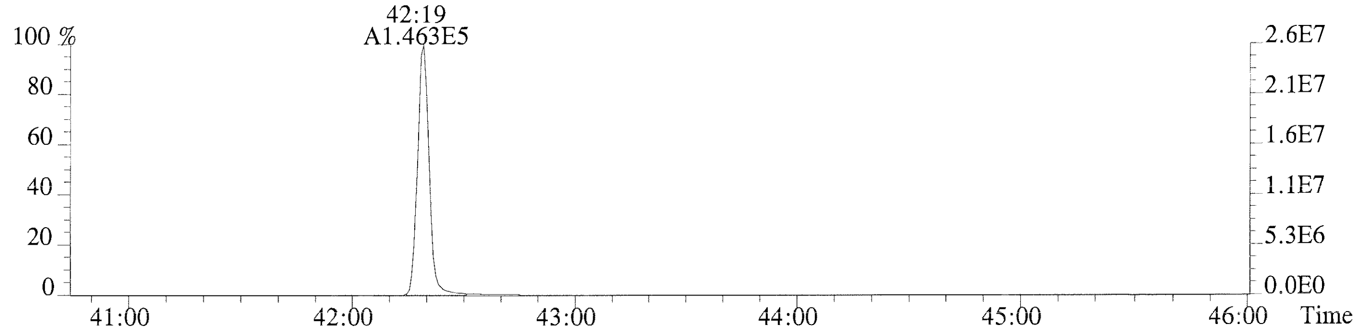
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



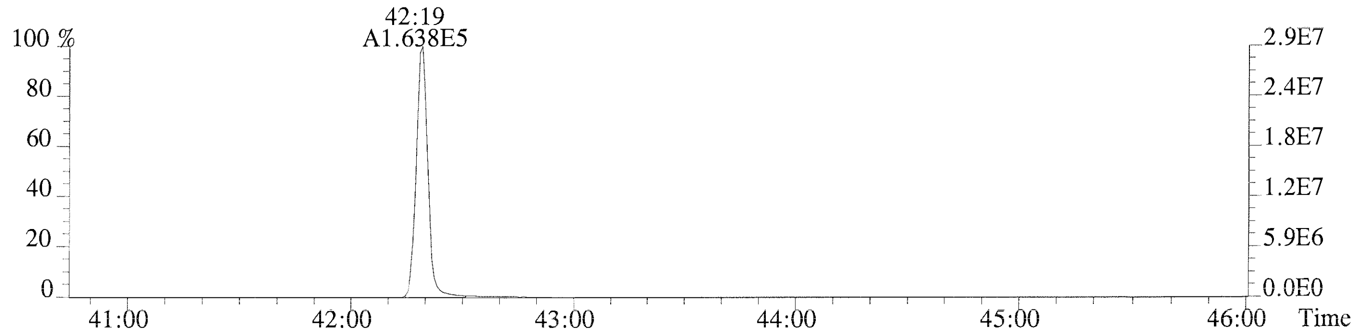
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



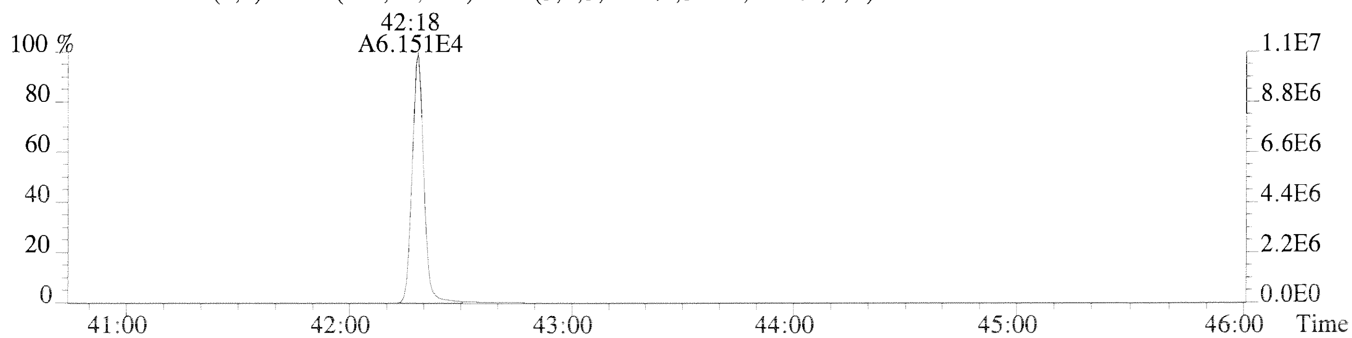
File:P230734 #1-485 Acq:24-AUG-2014 14:34:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



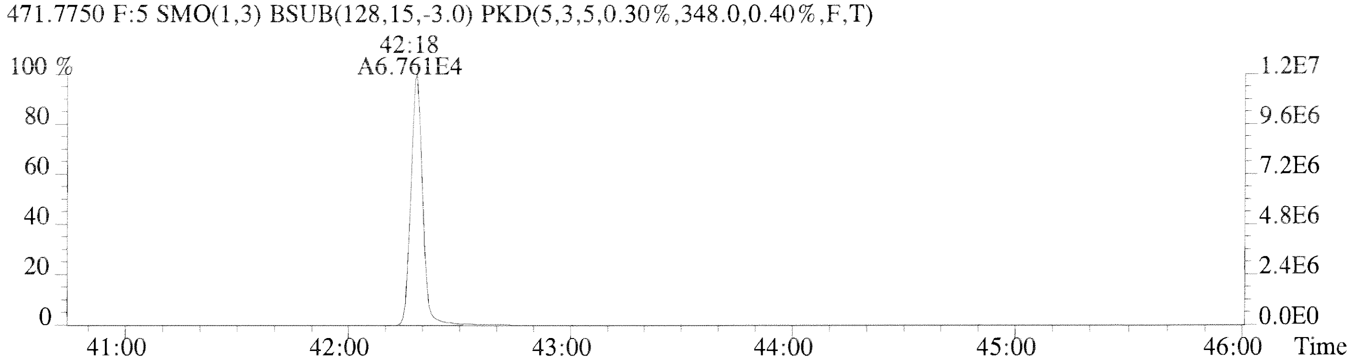
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



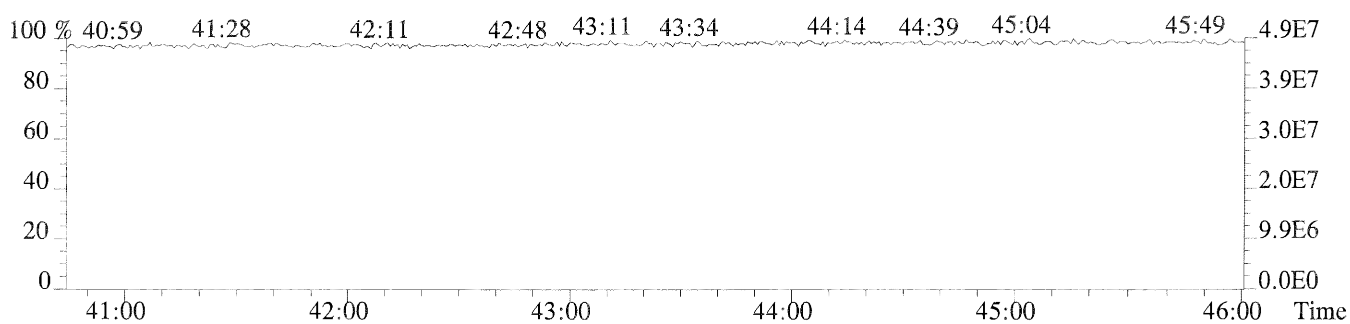
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CS5

Run #6 Filename P230735 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 15:22:09
Processed: 25-AUG-14 11:37:43 LAB. ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:19	1.204e+05	1.562e+05	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.068e+06	6.907e+05	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	1.076e+06	7.018e+05	1.53	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	9.238e+05	7.445e+05	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	9.448e+05	7.624e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	8.890e+05	7.169e+05	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	6.789e+05	5.448e+05	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	7.295e+05	7.060e+05	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	4.872e+05	4.793e+05	1.02	yes	no	1.000
10	Unk	OCDF	42:32	8.726e+05	9.679e+05	0.90	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:06	9.272e+04	1.177e+05	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	7.808e+05	4.903e+05	1.59	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	7.127e+05	5.672e+05	1.26	yes	yes	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:50	6.726e+05	5.351e+05	1.26	yes	yes	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	7.272e+05	5.832e+05	1.25	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	5.445e+05	5.214e+05	1.04	yes	no	1.000
17	Unk	OCDD	42:18	7.839e+05	8.739e+05	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:18	6.202e+04	7.751e+04	0.80	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:27	1.140e+05	7.188e+04	1.59	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.079e+05	6.776e+04	1.59	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	4.903e+04	9.421e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	5.148e+04	9.842e+04	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	4.991e+04	9.578e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	3.705e+04	7.140e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	3.294e+04	7.564e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.127e+04	5.026e+04	0.42	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	4.431e+04	5.617e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:38	7.725e+04	4.906e+04	1.57	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	5.956e+04	4.727e+04	1.26	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	6.922e+04	5.428e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	5.224e+04	4.900e+04	1.07	yes	no	1.066
32	IS	13C-OCDD	42:18	7.329e+04	8.096e+04	0.91	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	4.268e+04	5.339e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	6.750e+04	5.255e+04	1.28	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	2.149e+05				no	1.020

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CS5

Run #6 Filename P230735 Samp: 1 Inj: 1 Acquired: 24-AUG-14 15:22:09
Processed: 25-AUG-14 11:37:43 LAB. ID: 66799

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.50e+07	3.08e+02	8.1e+04	3.26e+07	2.47e+03	1.3e+04
2	1,2,3,7,8-PeCDF	2.11e+08	3.09e+03	6.8e+04	1.36e+08	3.80e+03	3.6e+04
3	2,3,4,7,8-PeCDF	2.24e+08	3.09e+03	7.3e+04	1.45e+08	3.80e+03	3.8e+04
4	1,2,3,4,7,8-HxCDF	2.08e+08	4.70e+03	4.4e+04	1.66e+08	2.75e+03	6.0e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	4.70e+03	4.5e+04	1.69e+08	2.75e+03	6.2e+04
6	2,3,4,6,7,8-HxCDF	2.04e+08	4.70e+03	4.3e+04	1.63e+08	2.75e+03	5.9e+04
7	1,2,3,7,8,9-HxCDF	1.53e+08	4.70e+03	3.3e+04	1.23e+08	2.75e+03	4.5e+04
8	1,2,3,4,6,7,8-HpCDF	1.70e+08	2.42e+04	7.0e+03	1.64e+08	3.41e+04	4.8e+03
9	1,2,3,4,7,8,9-HpCDF	1.05e+08	2.42e+04	4.3e+03	1.01e+08	3.41e+04	3.0e+03
10	OCDF	1.64e+08	3.88e+02	4.2e+05	1.77e+08	1.07e+03	1.7e+05
11	2,3,7,8-TCDD	2.08e+07	9.56e+02	2.2e+04	2.62e+07	6.52e+02	4.0e+04
12	1,2,3,7,8-PeCDD	1.60e+08	9.08e+02	1.8e+05	9.96e+07	3.36e+02	3.0e+05
13	1,2,3,4,7,8-HxCDD	1.65e+08	6.80e+01	2.4e+06	1.30e+08	5.08e+02	2.6e+05
14	1,2,3,6,7,8-HxCDD	1.46e+08	6.80e+01	2.1e+06	1.17e+08	5.08e+02	2.3e+05
15	1,2,3,7,8,9-HxCDD	1.63e+08	6.80e+01	2.4e+06	1.29e+08	5.08e+02	2.5e+05
16	1,2,3,4,6,7,8-HpCDD	1.16e+08	5.18e+03	2.2e+04	1.12e+08	4.32e+03	2.6e+04
17	OCDD	1.43e+08	3.64e+02	3.9e+05	1.61e+08	4.24e+02	3.8e+05
18	13C-2,3,7,8-TCDF	1.30e+07	1.27e+03	1.0e+04	1.63e+07	1.48e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.19e+07	7.16e+02	3.1e+04	1.39e+07	1.31e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.16e+07	7.16e+02	3.0e+04	1.35e+07	1.31e+03	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	1.09e+07	4.32e+02	2.5e+04	2.09e+07	2.44e+03	8.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.14e+07	4.32e+02	2.6e+04	2.17e+07	2.44e+03	8.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.14e+07	4.32e+02	2.6e+04	2.18e+07	2.44e+03	8.9e+03
24	13C-1,2,3,7,8,9-HxCDF	8.26e+06	4.32e+02	1.9e+04	1.60e+07	2.44e+03	6.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.58e+06	1.42e+03	5.3e+03	1.73e+07	3.04e+03	5.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.59e+06	1.42e+03	3.2e+03	1.07e+07	3.04e+03	3.5e+03
27	13C-2,3,7,8-TCDD	9.66e+06	5.04e+03	1.9e+03	1.21e+07	2.69e+03	4.5e+03
28	13C-1,2,3,7,8-PeCDD	1.59e+07	8.00e+02	2.0e+04	1.02e+07	3.96e+02	2.6e+04
29	13C-1,2,3,4,7,8-HxCDD	1.35e+07	1.06e+03	1.3e+04	1.07e+07	1.30e+03	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.49e+07	1.06e+03	1.4e+04	1.19e+07	1.30e+03	9.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.12e+07	1.58e+03	7.1e+03	1.06e+07	1.09e+03	9.7e+03
32	13C-OCDD	1.32e+07	1.42e+03	9.2e+03	1.45e+07	7.04e+02	2.1e+04
33	13C-1,2,3,4-TCDD	9.03e+06	5.04e+03	1.8e+03	1.13e+07	2.69e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.48e+07	1.06e+03	1.4e+04	1.16e+07	1.30e+03	8.9e+03
35	37Cl-2,3,7,8-TCDD	4.78e+07	1.20e+03	4.0e+04			

ALS ENVIRONMENTAL
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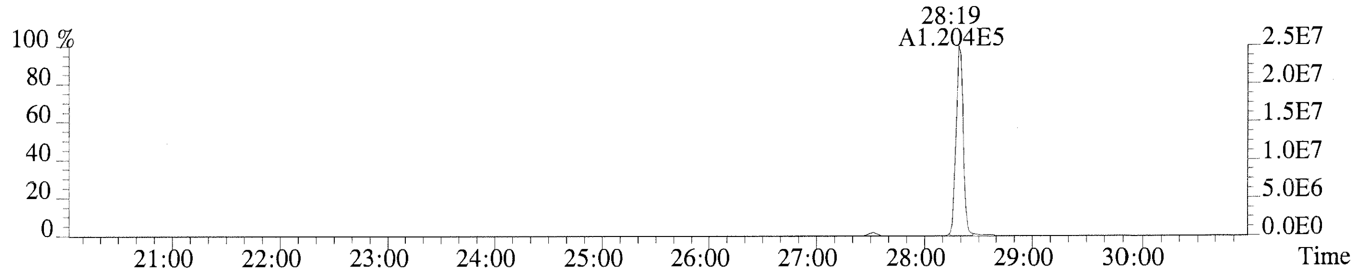
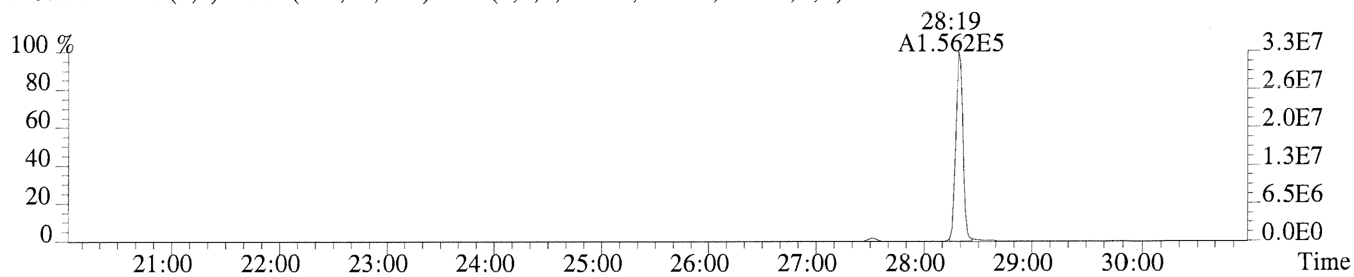
XLSN

File:P230735 #1-687 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

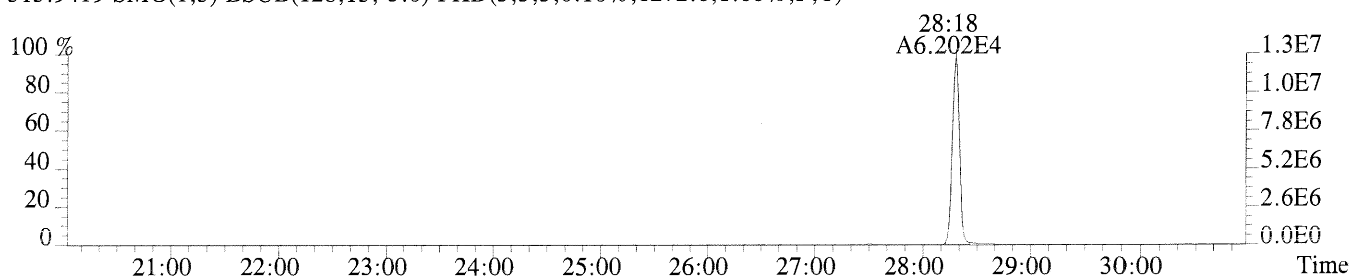
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



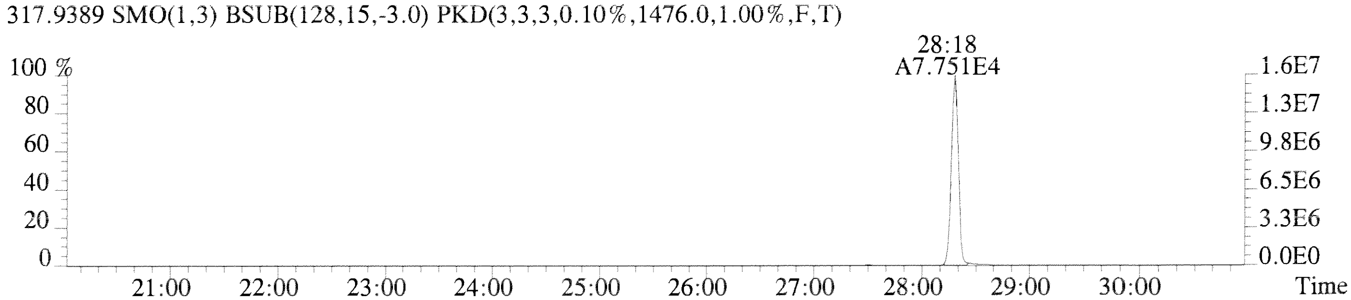
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



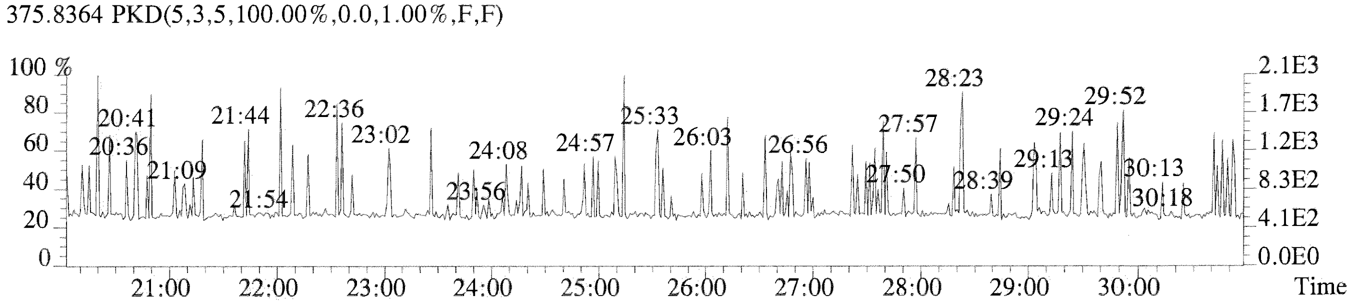
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



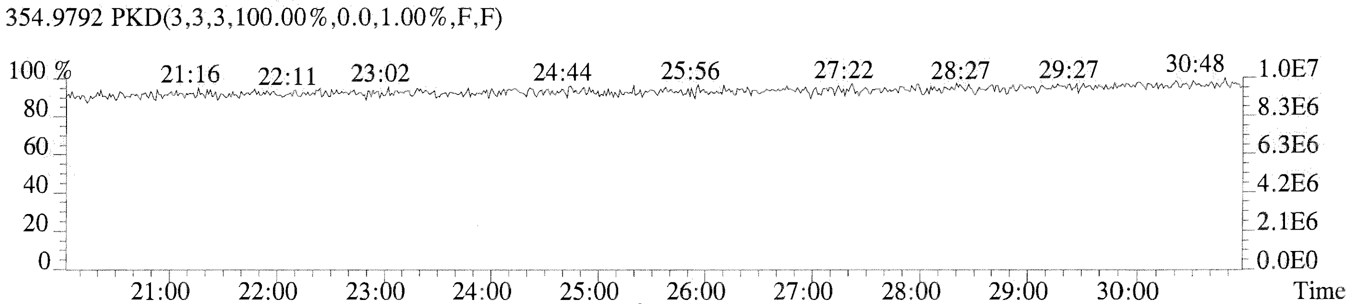
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

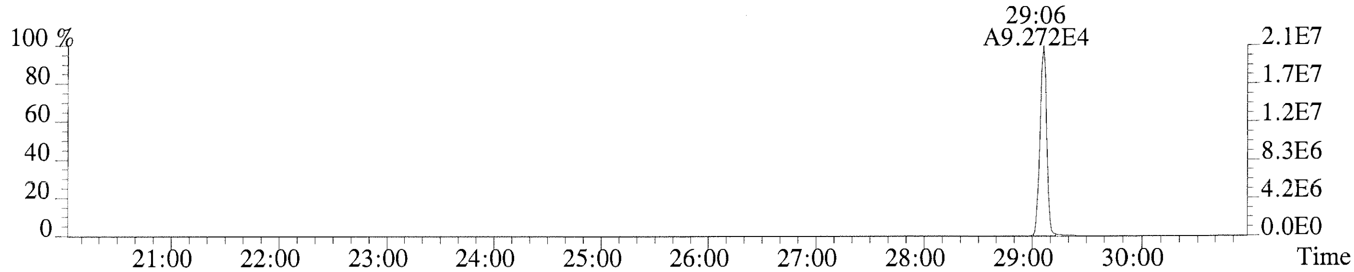


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

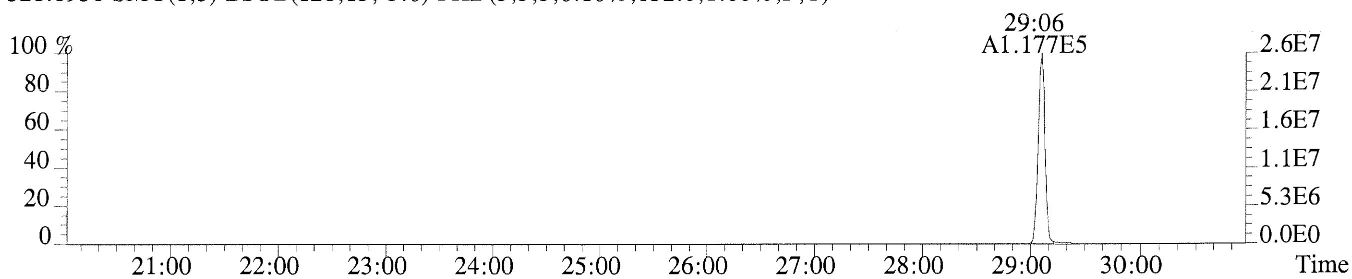


File:P230735 #1-687 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

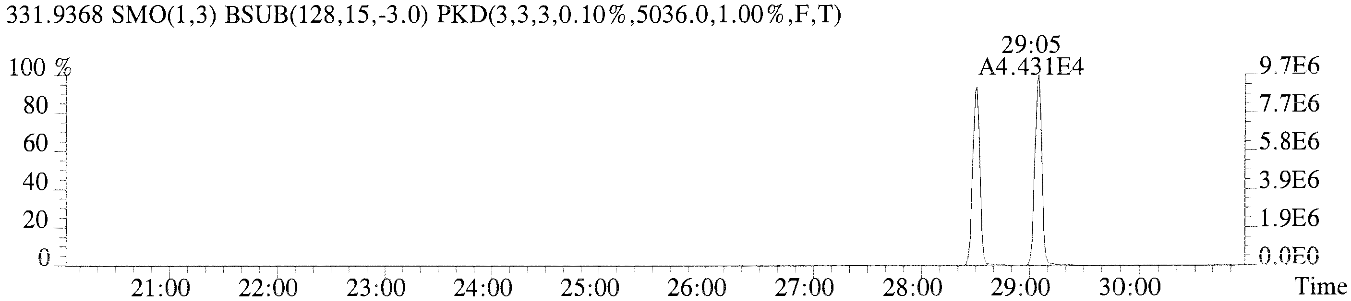
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



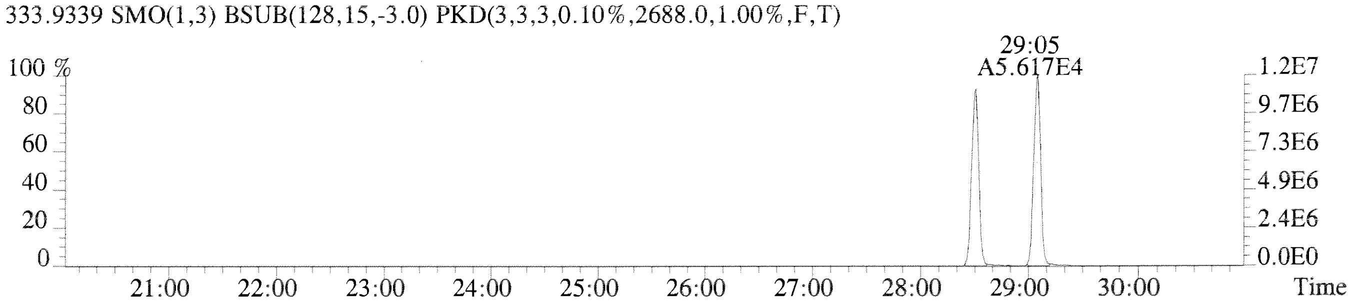
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



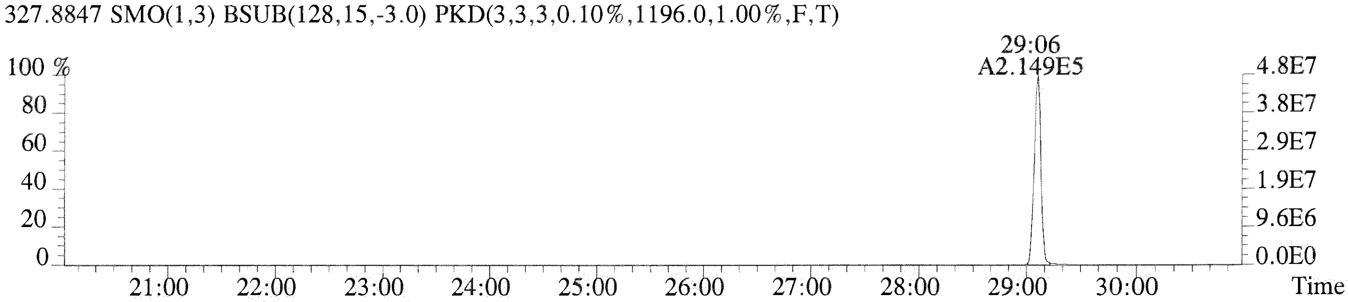
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5036.0,1.00%,F,T)



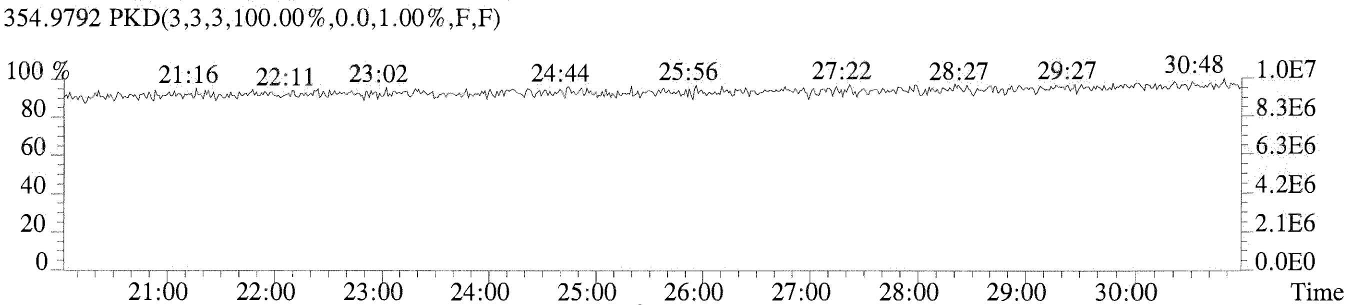
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)

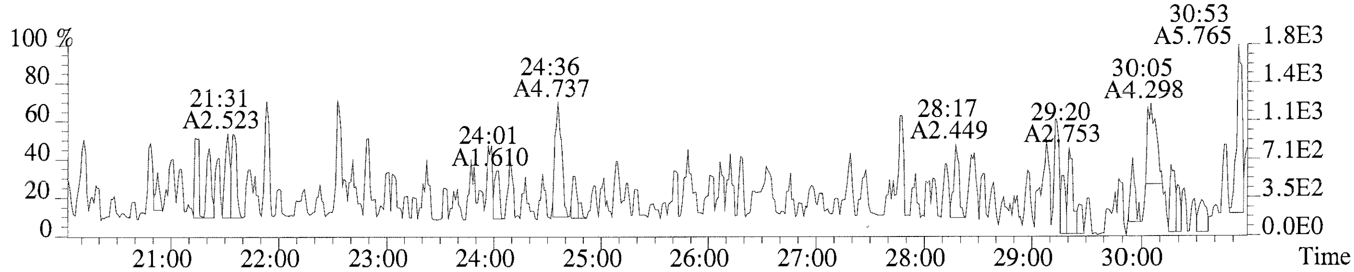


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

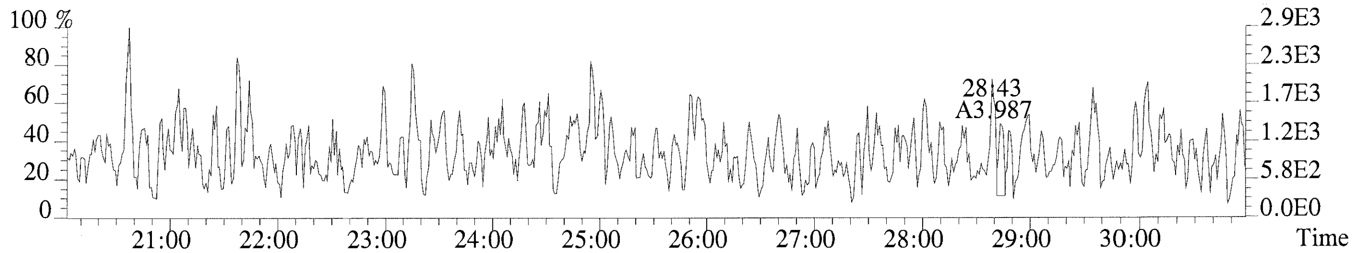


File:P230735 #1-687 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

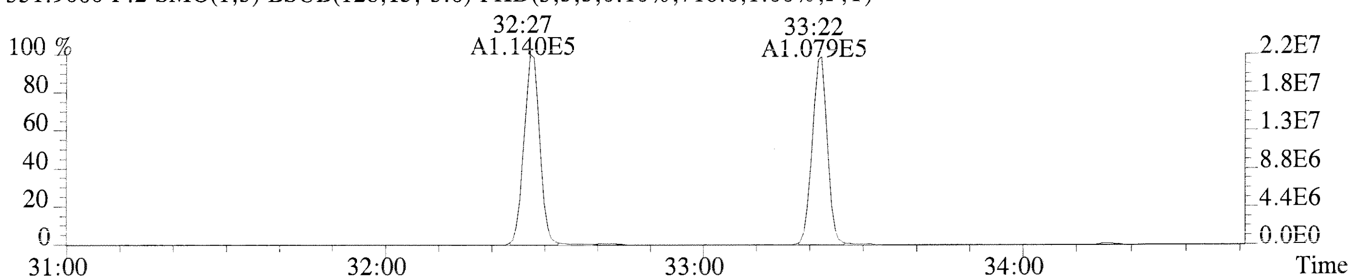
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



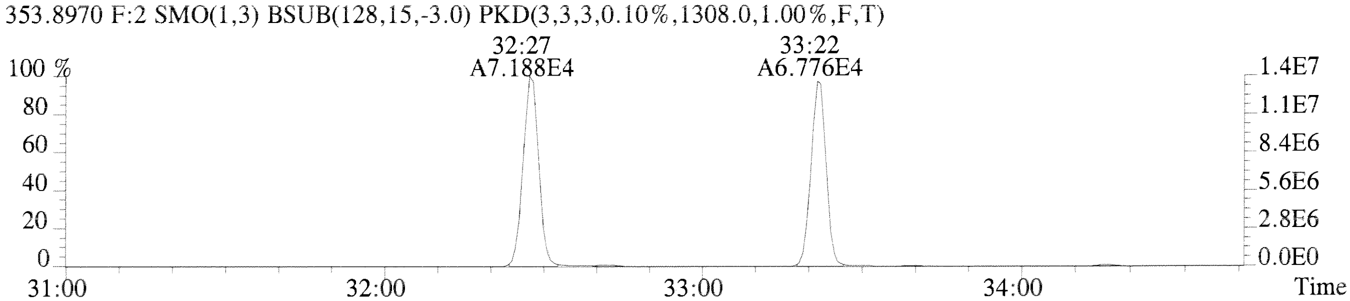
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



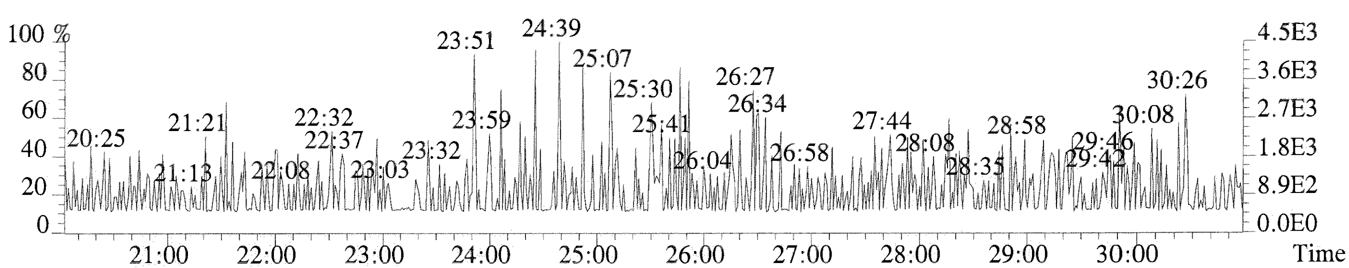
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



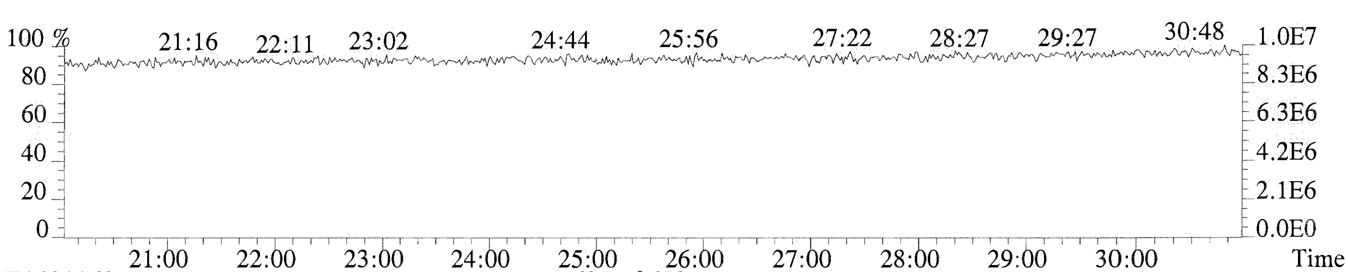
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



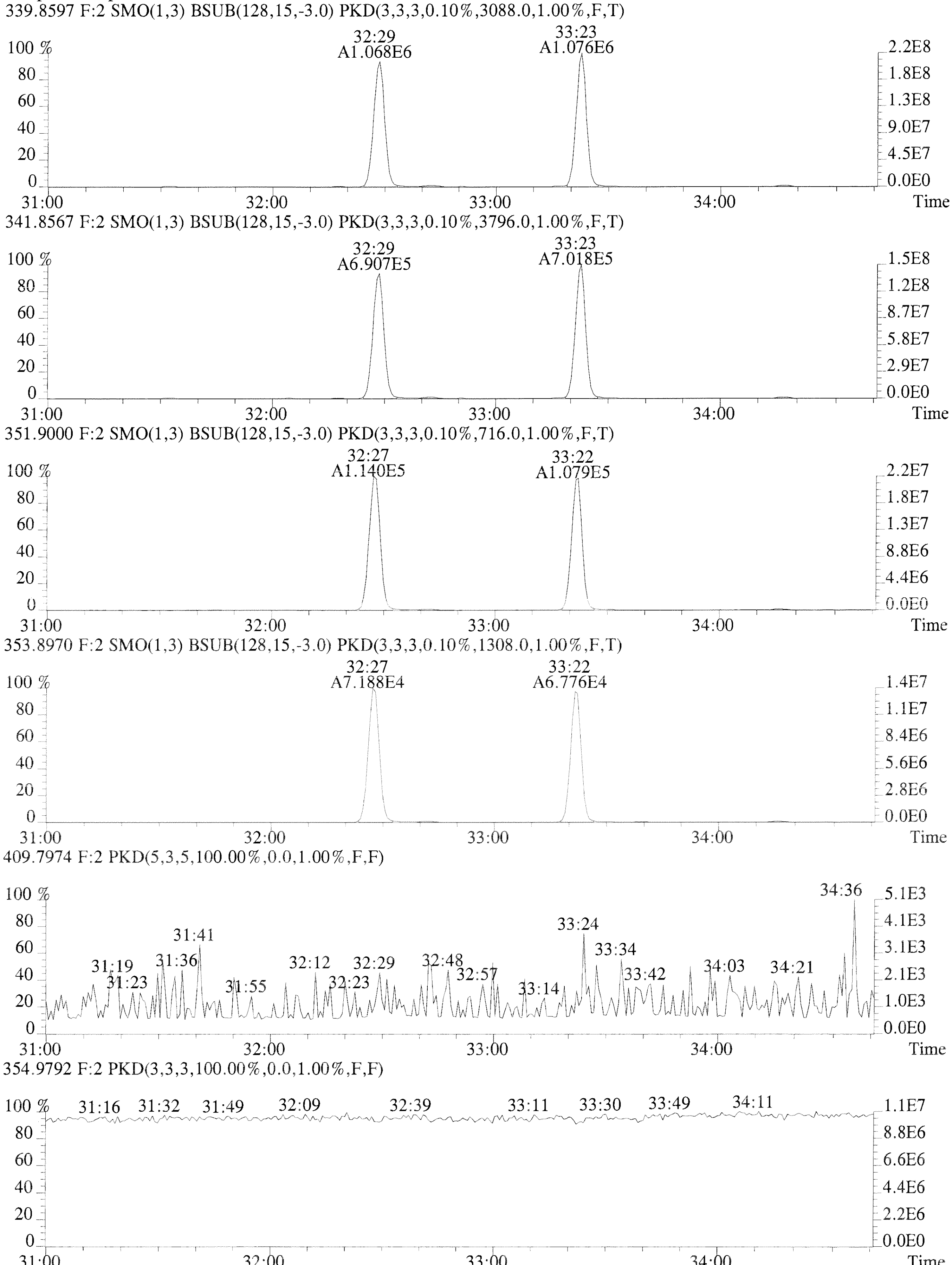
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



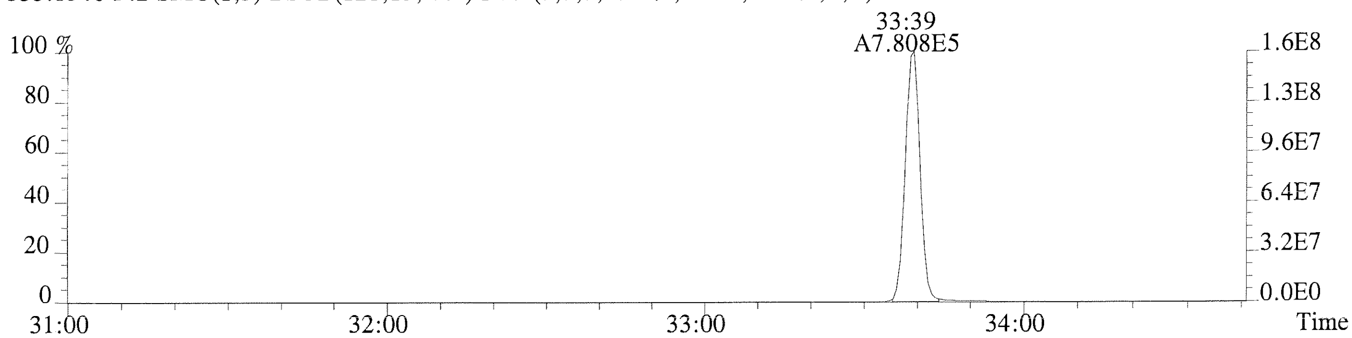
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



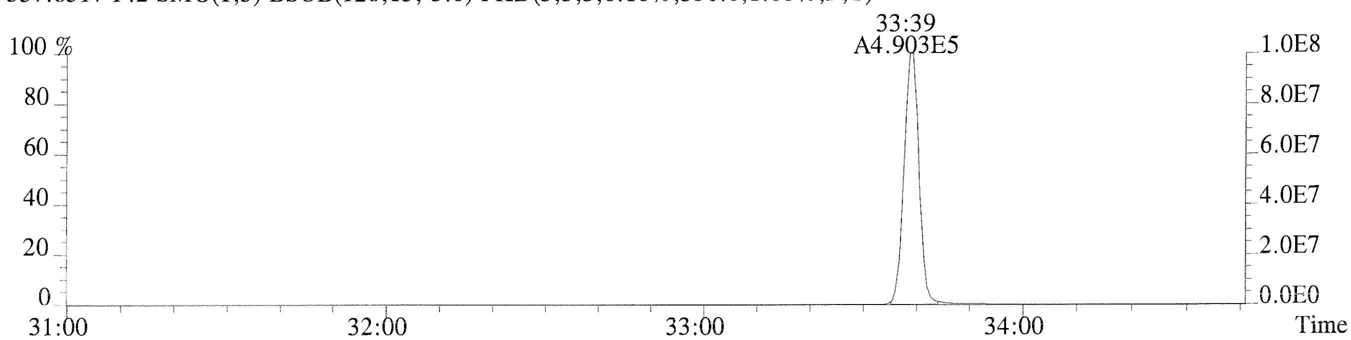
File:P230735 #1-335 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5



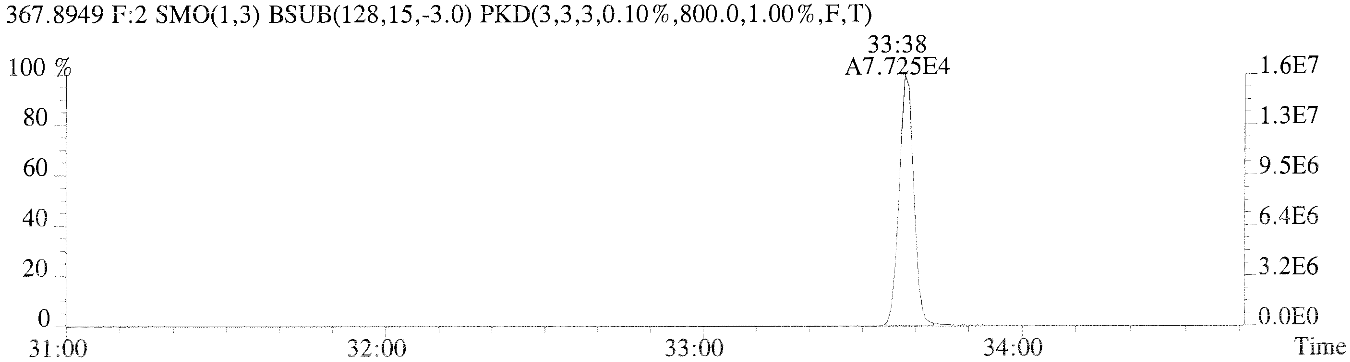
File:P230735 #1-335 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



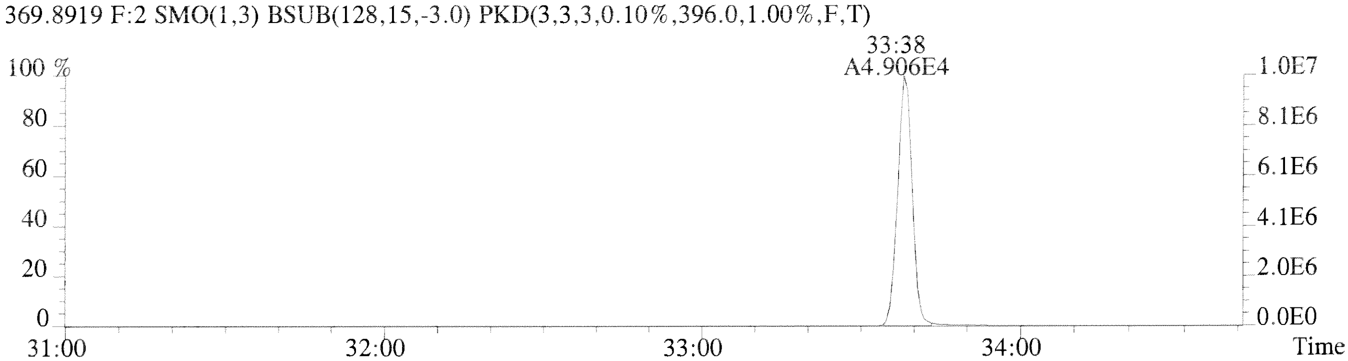
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



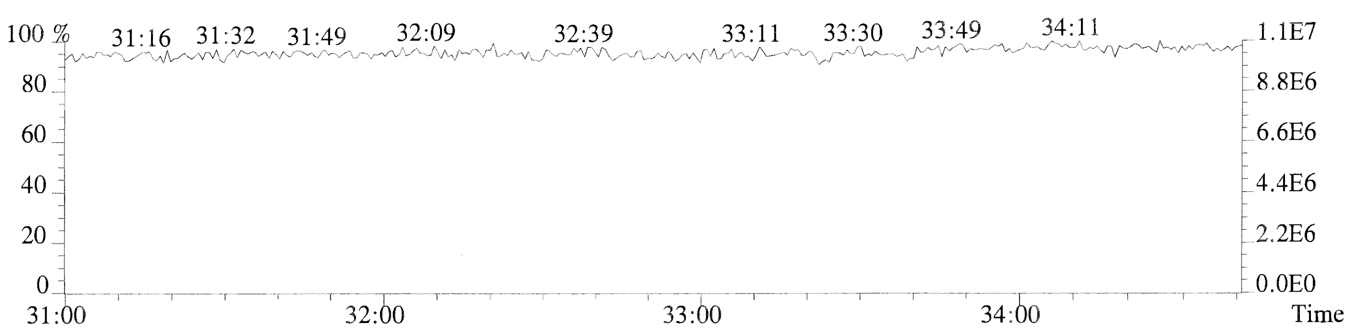
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)

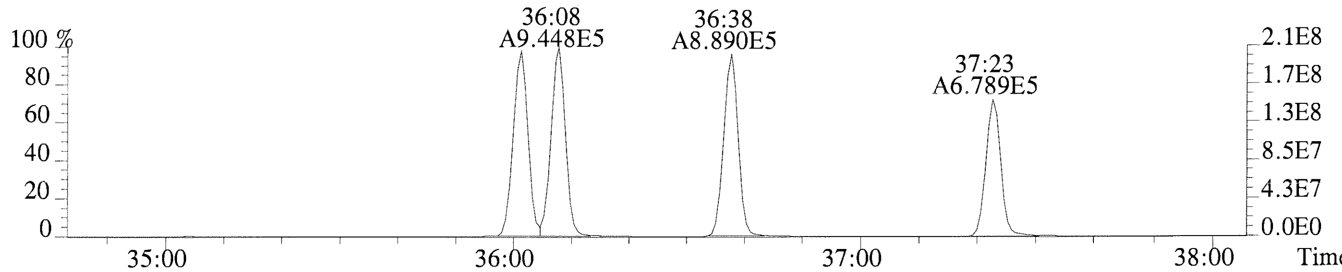


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

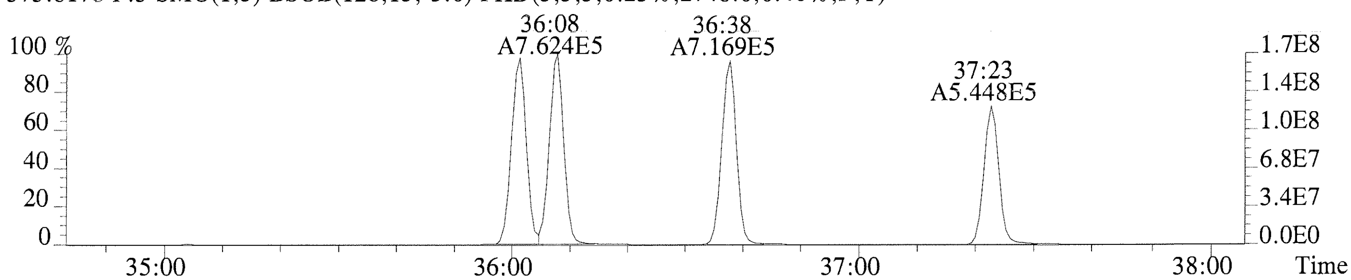


File:P230735 #1-307 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

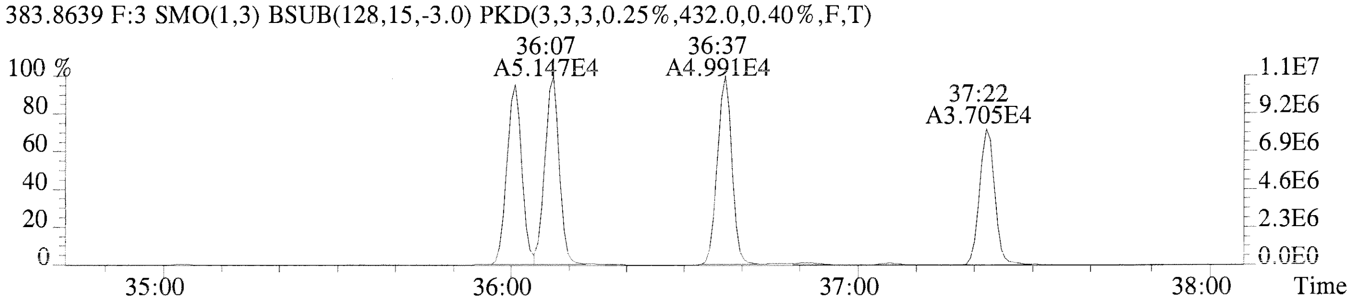
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4700.0,0.40%,F,T)



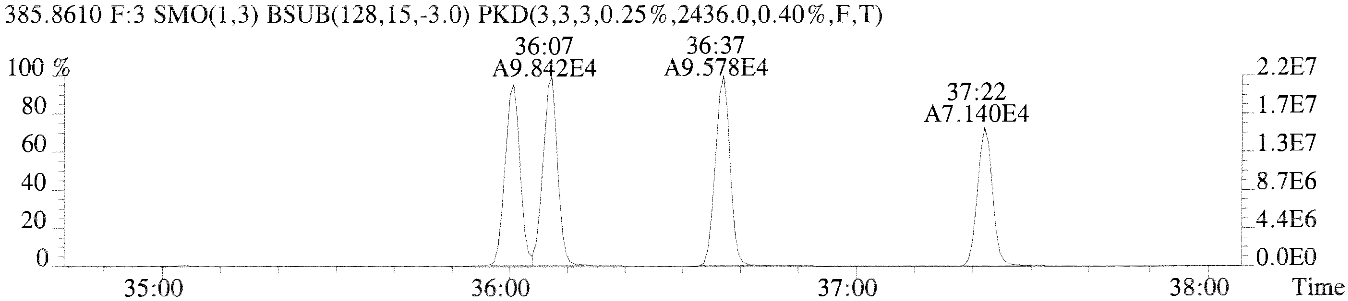
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2748.0,0.40%,F,T)



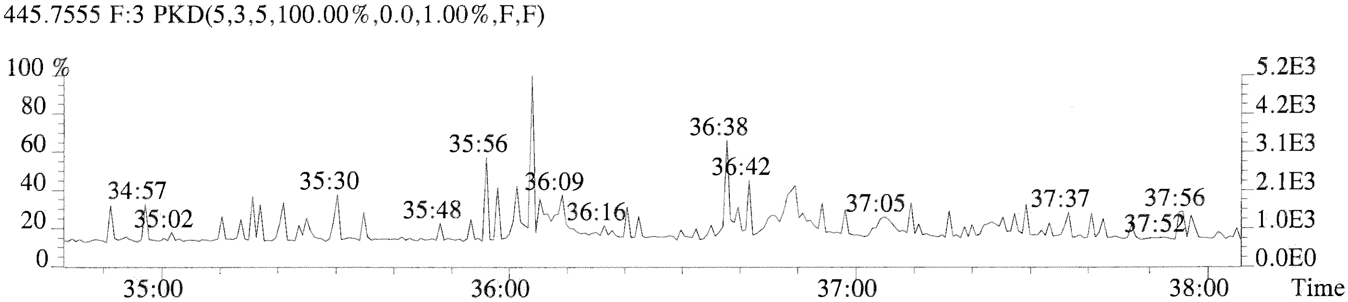
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



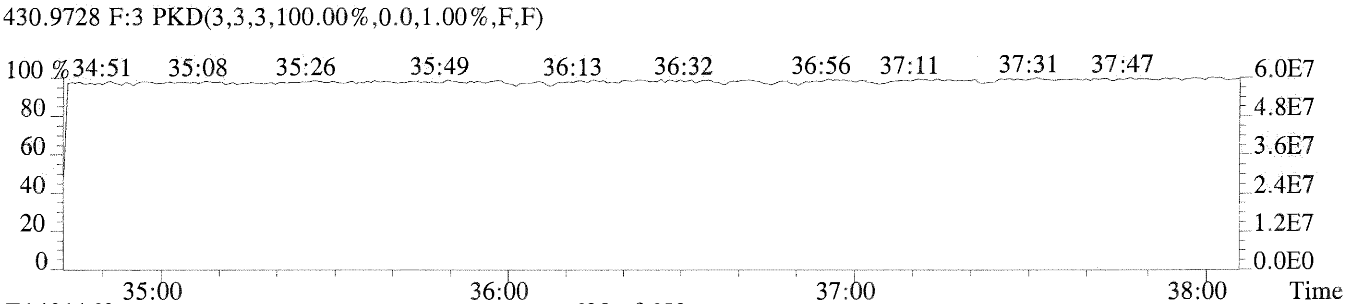
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2436.0,0.40%,F,T)



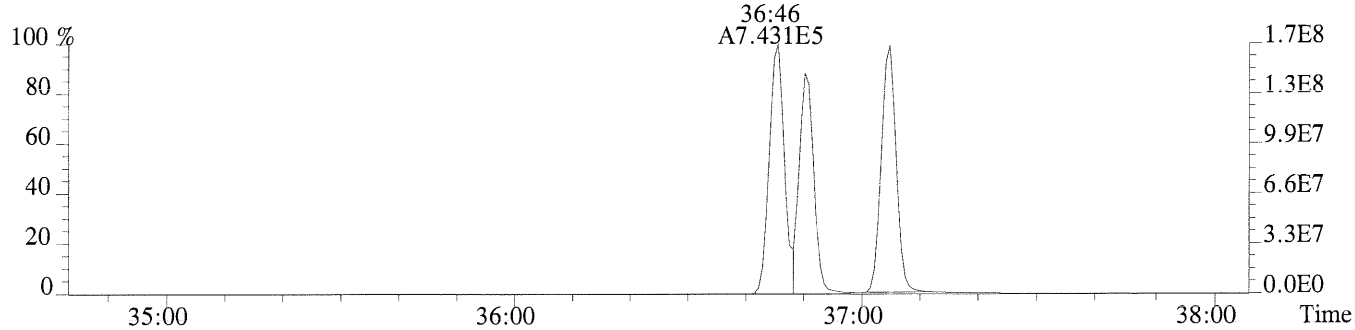
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



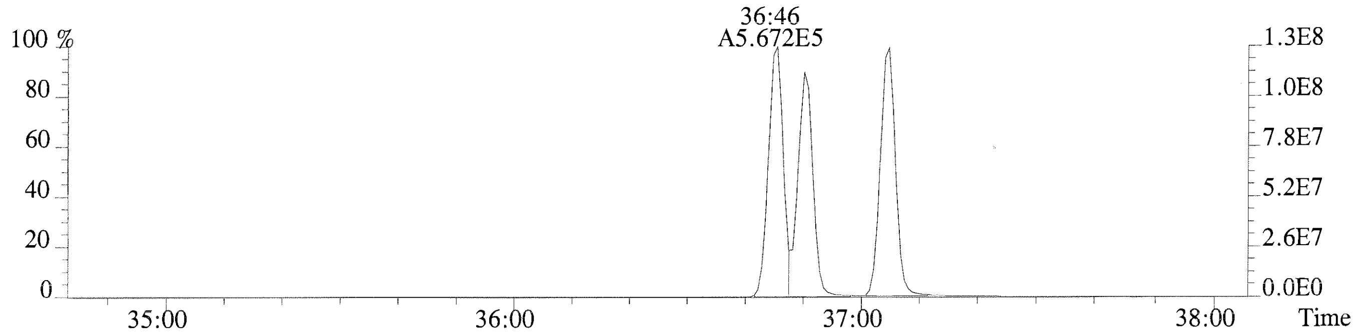
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



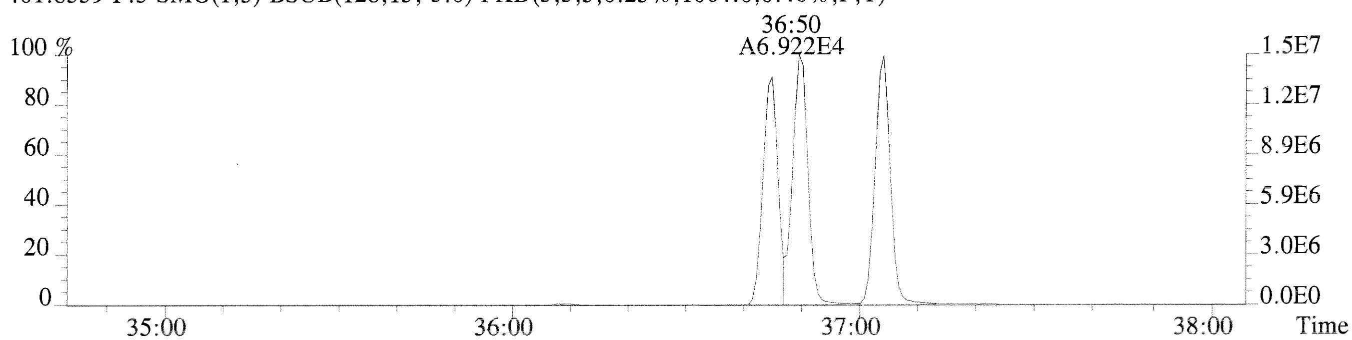
File:P230735 #1-307 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



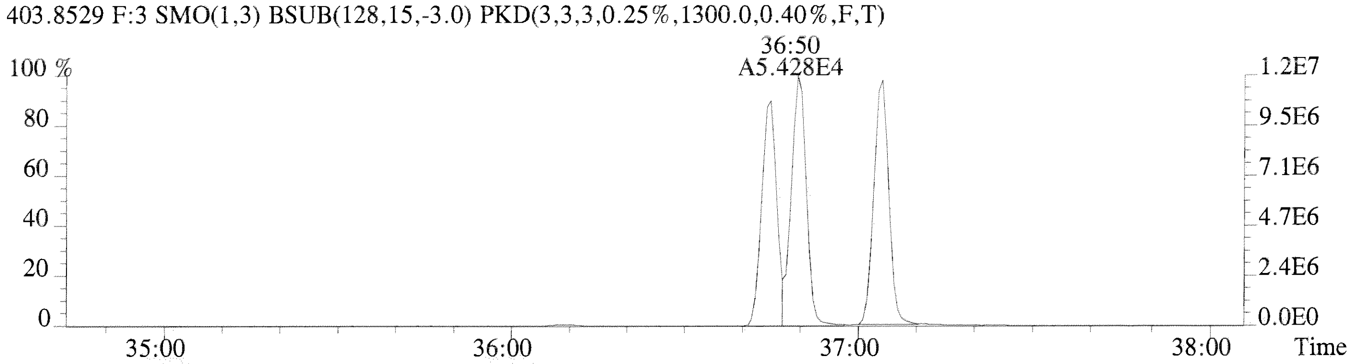
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



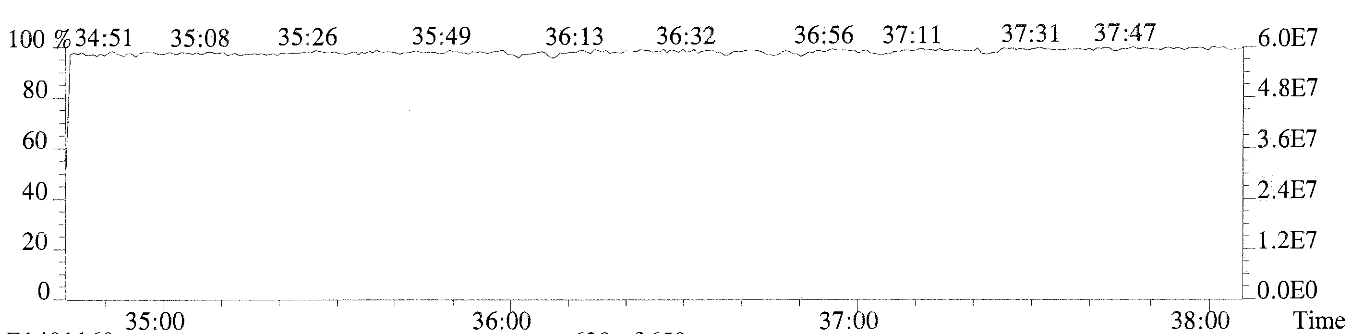
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)

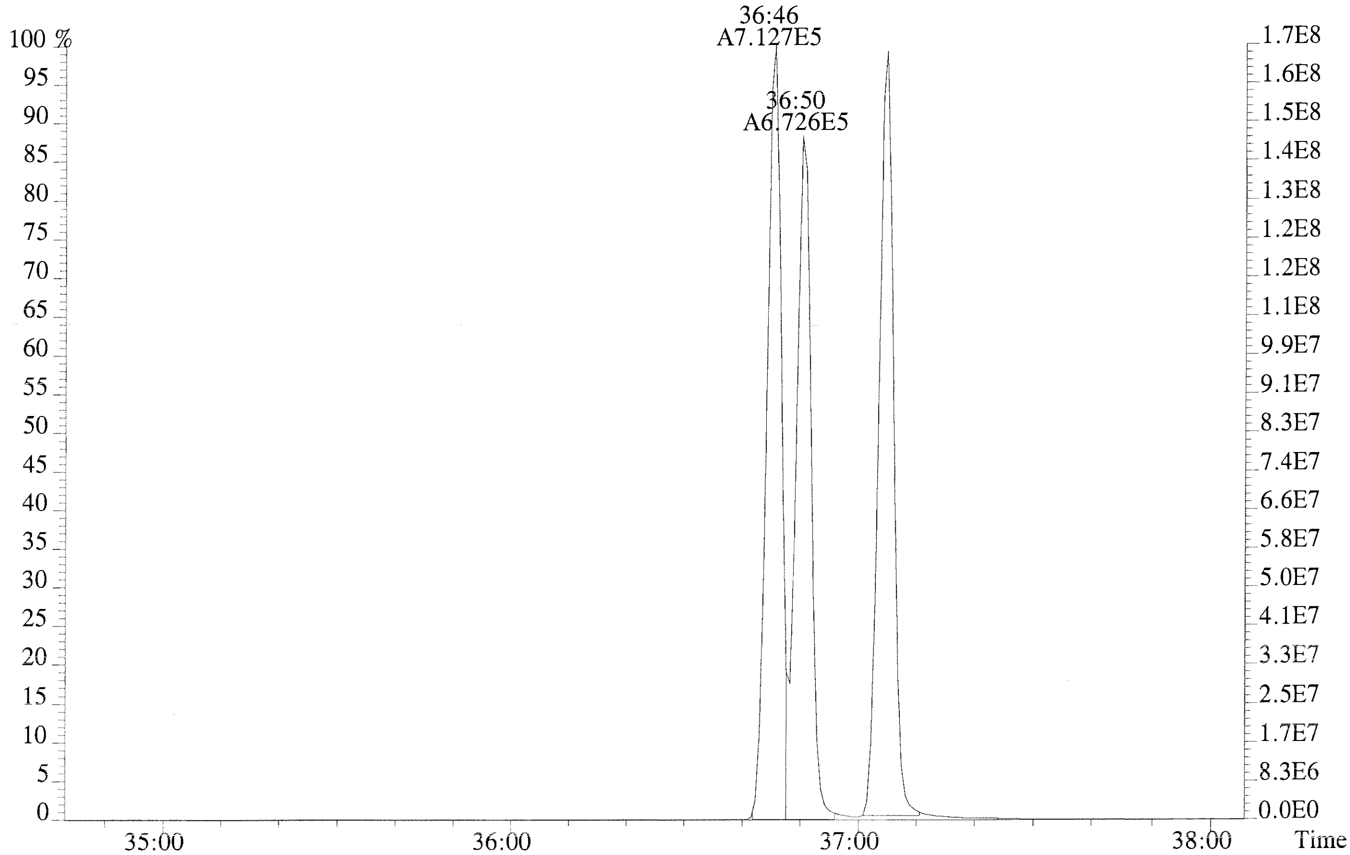


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

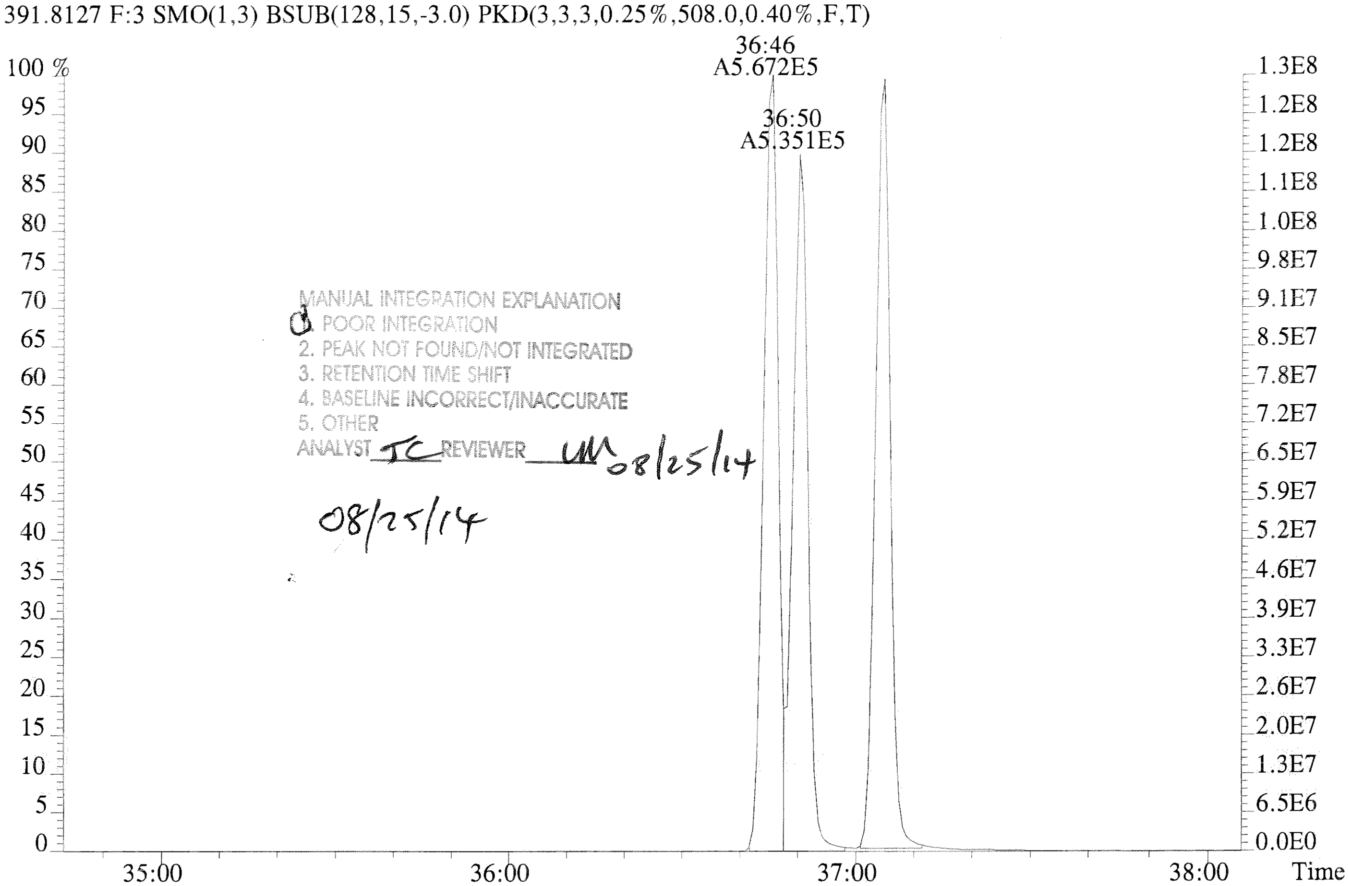


File:P230735 #1-307 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)

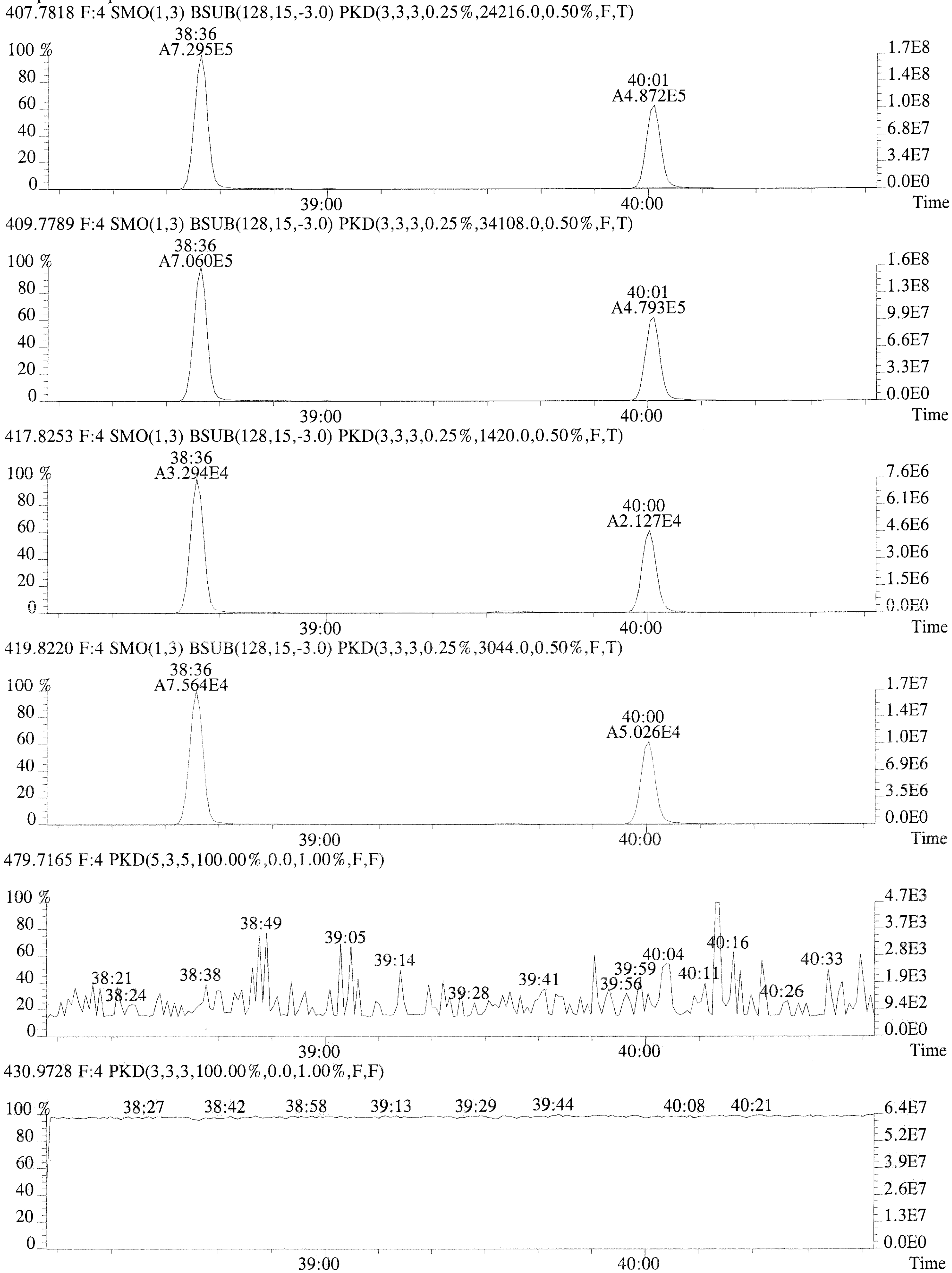


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



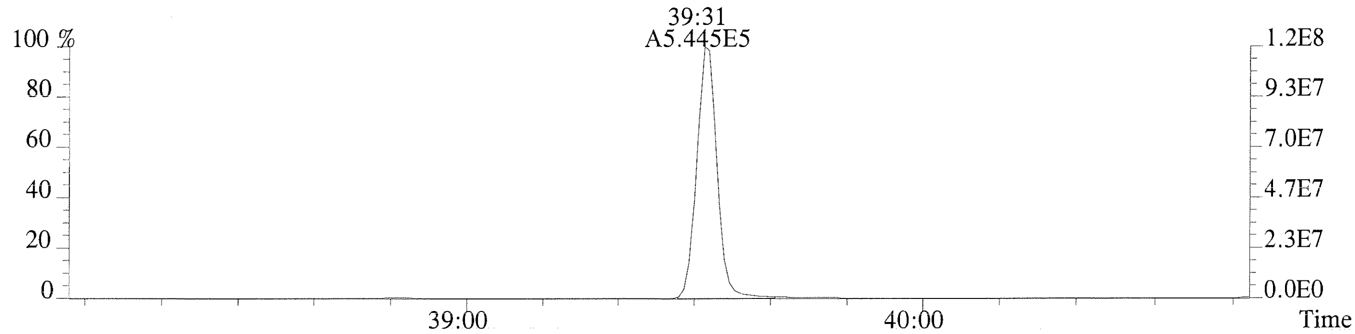
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER UM 08/25/14
08/25/14

File:P230735 #1-234 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

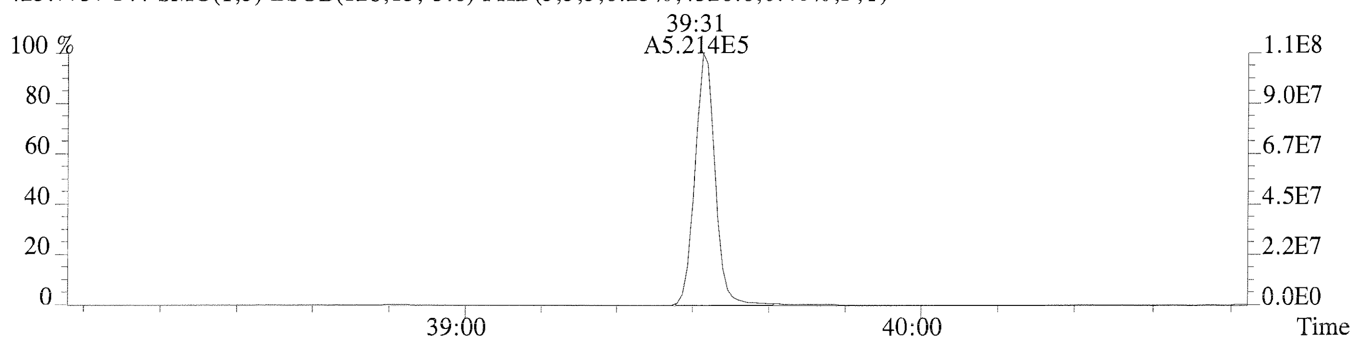


File:P230735 #1-234 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

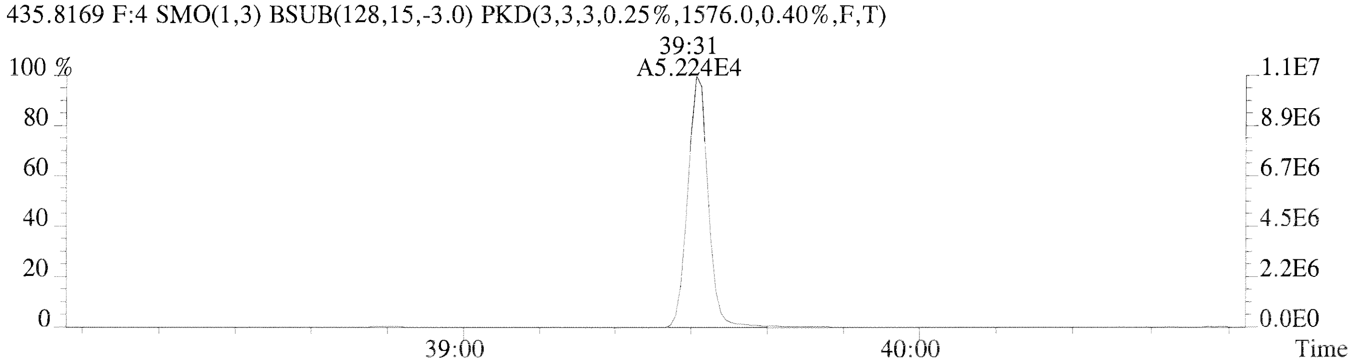
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5180.0,0.40%,F,T)



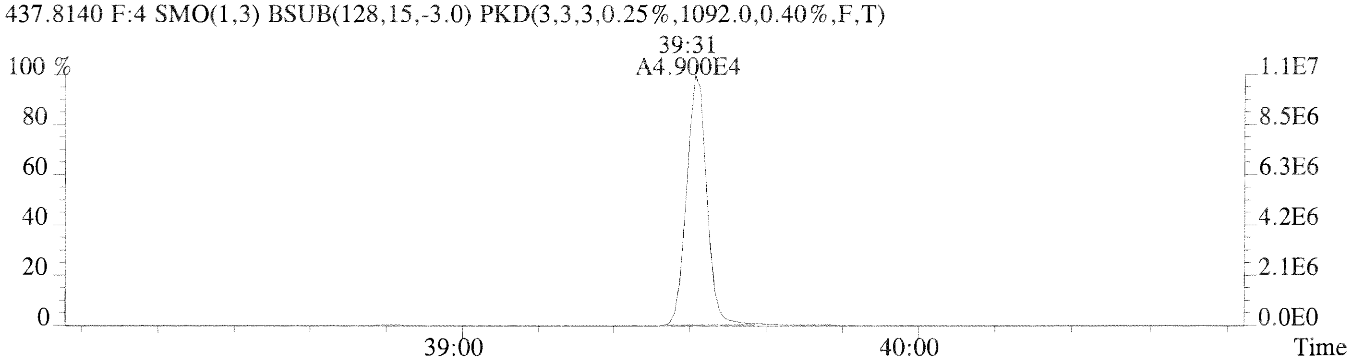
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4320.0,0.40%,F,T)



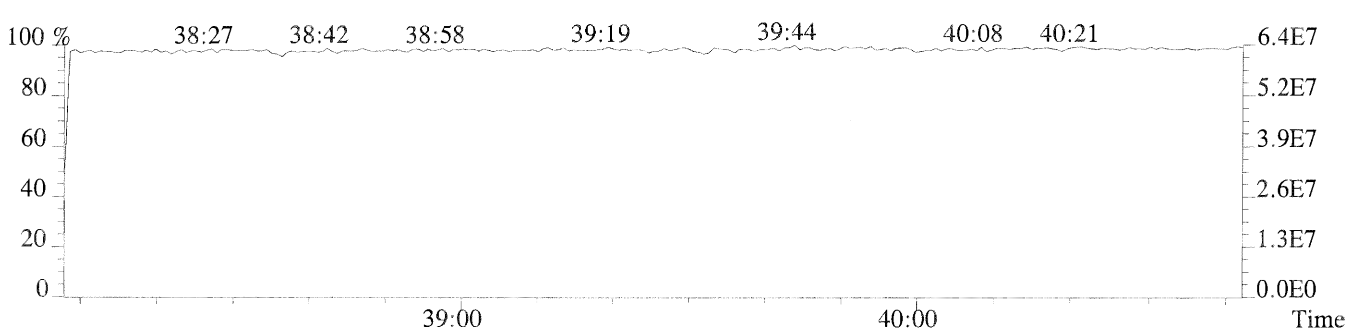
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)

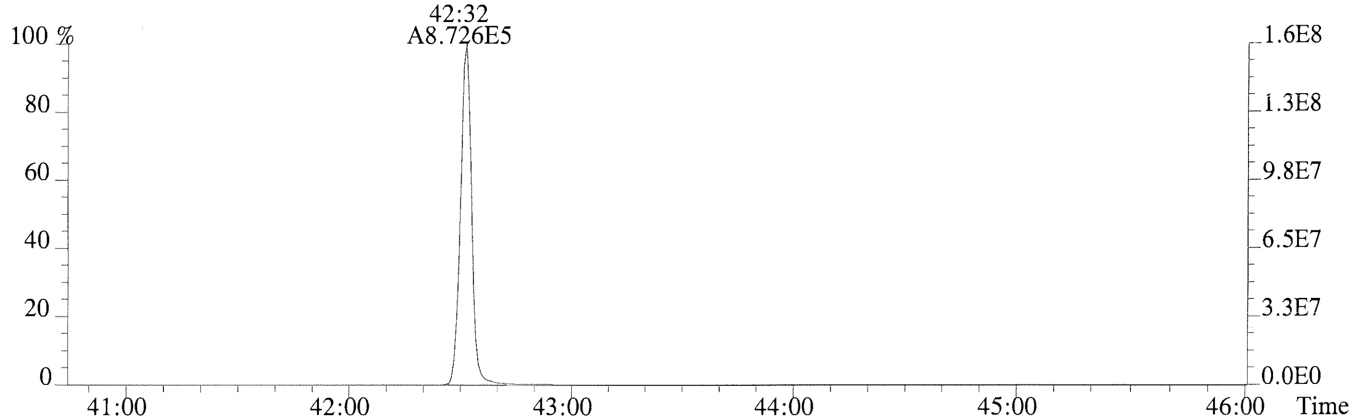


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

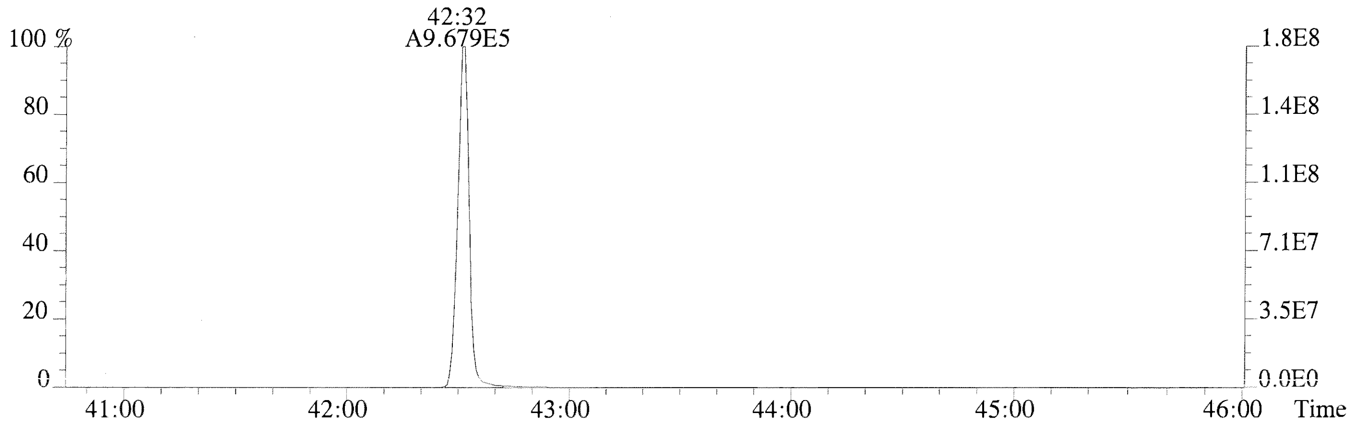


File:P230735 #1-485 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

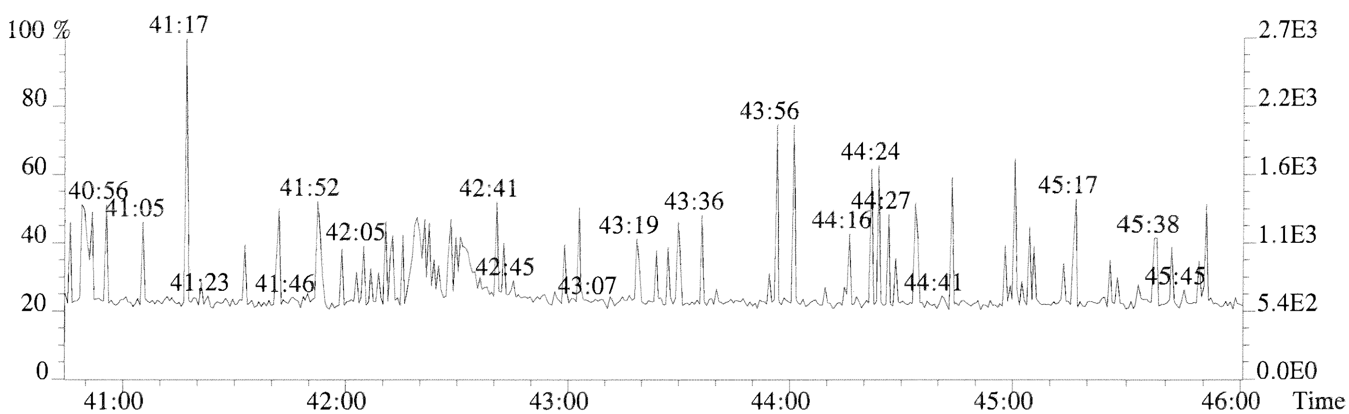
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



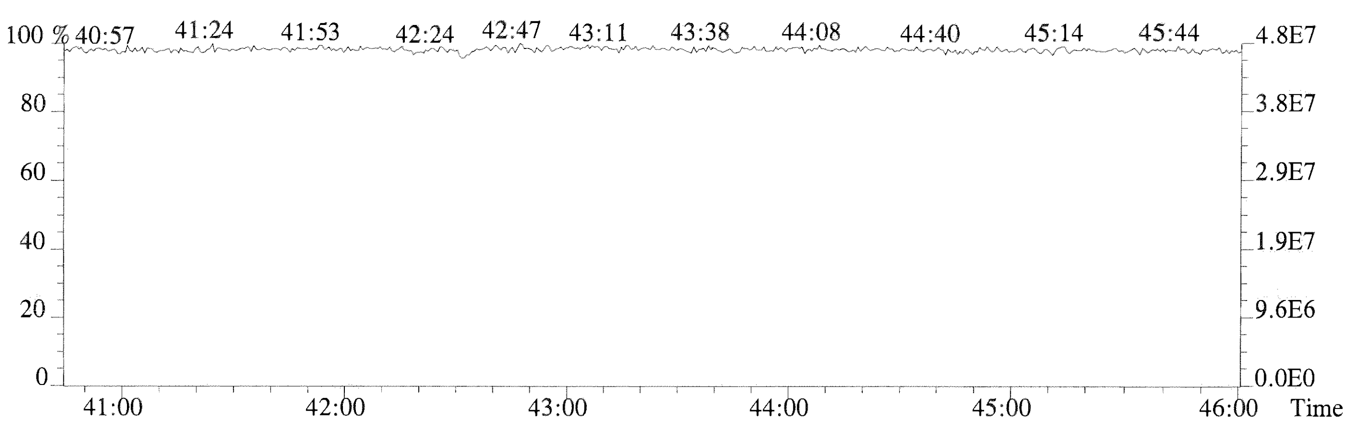
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

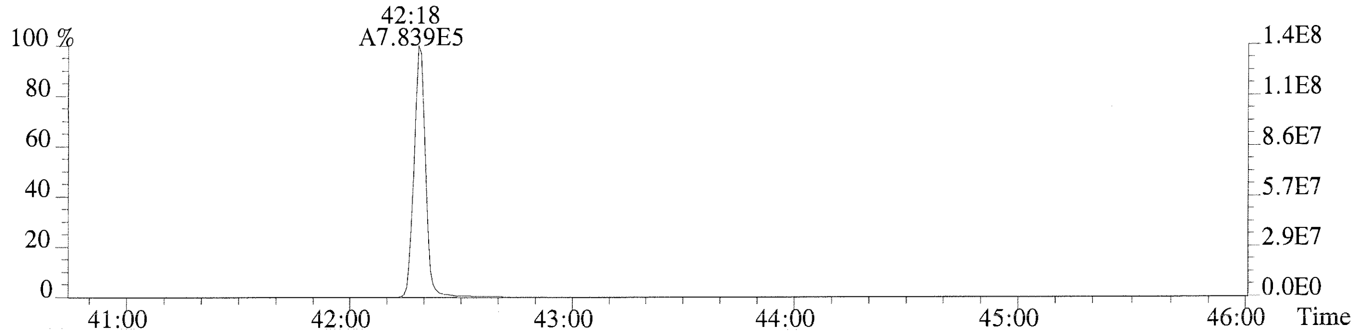


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

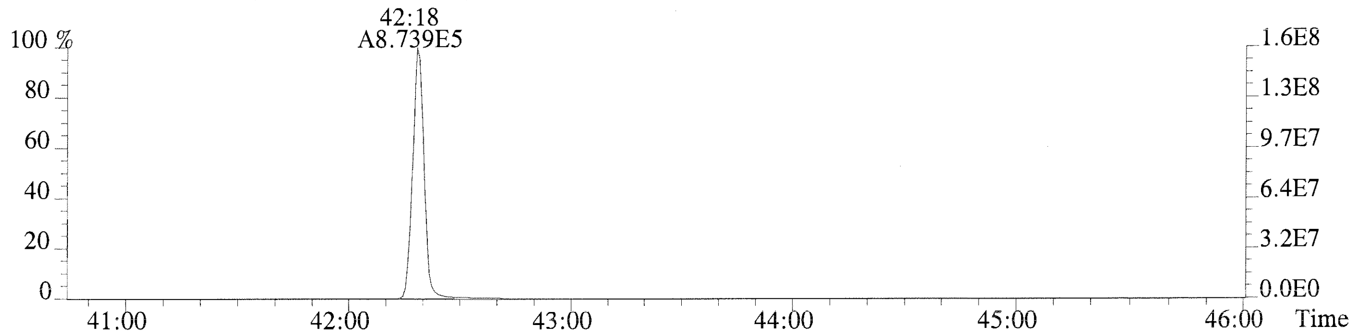


File:P230735 #1-485 Acq:24-AUG-2014 15:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

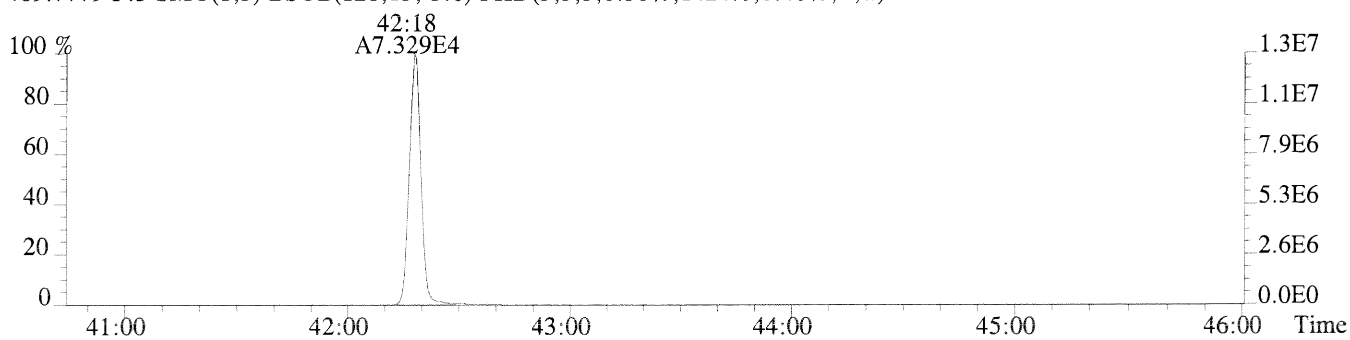
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



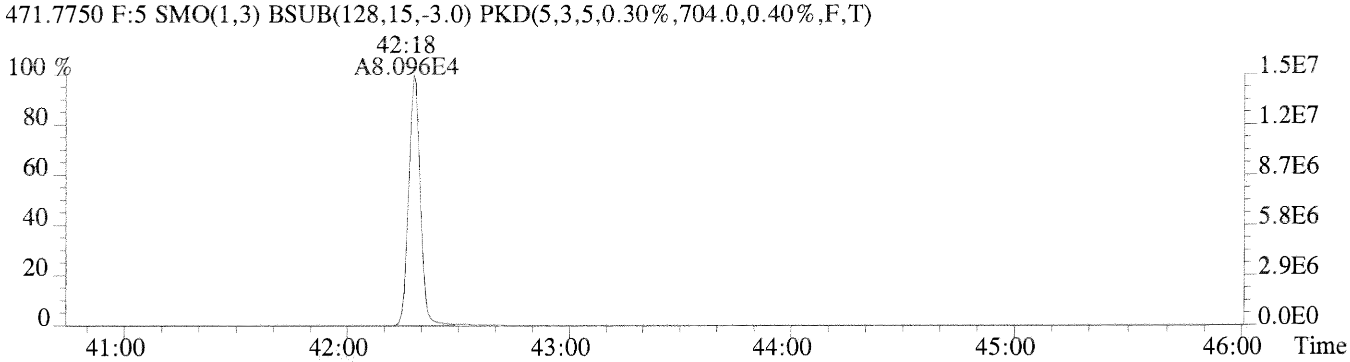
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



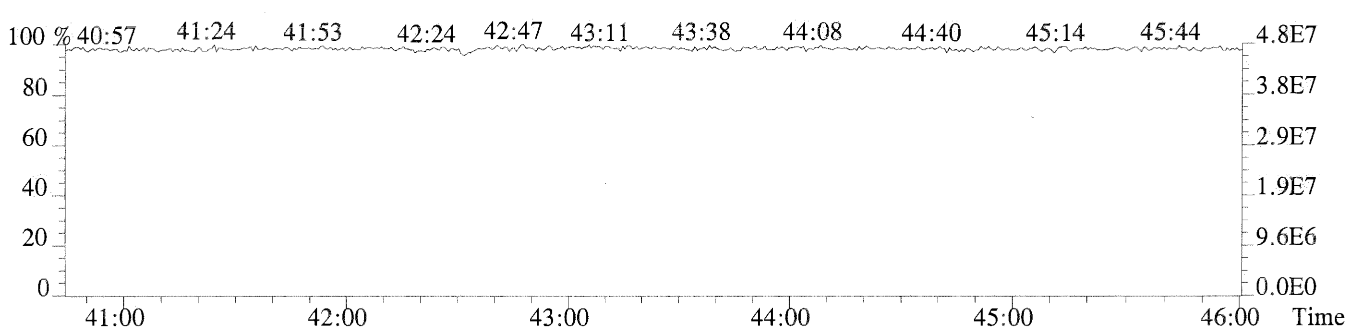
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1424.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P230736 Analysis Date: 24-AUG-14 Time: 16:10:02

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.6	7.8 - 12.9	-4.5
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	50	39 - 65	0.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	53	39 - 64	6.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	45	39 - 64	-9.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	48	41 - 61	-5.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-2.5
OCDD	M+2/M+4	0.89	0.76-1.02	92	79 - 126	-8.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.8	8.4 - 12.0	-2.4
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	47	41 - 60	-6.0
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	52	41 - 61	4.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-3.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	50	44 - 57	0.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	49	45 - 55	-2.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	53	43 - 58	5.3
OCDF	M+2/M+4	0.89	0.76-1.02	81	63 - 159	-18.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 08/24/14

Instrument ID: E-HRMS-04   GC Column ID: DB-5MSUI

VER Data Filename: P230736   Analysis Date: 24-AUG-14 Time: 16:10:02

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	101	82 - 121	0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	95	62 - 160	-5.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	98	85 - 117	-1.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	110	85 - 118	9.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	97	72 - 138	-2.6
13C-OCDD	M+2/M+4	0.90	0.76-1.02	198	96 - 415	-0.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	97	76 - 130	-2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	92	77 - 130	-8.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	76 - 131	1.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-2.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	88	74 - 135	-11.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	73 - 137	-0.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	97	78 - 129	-3.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	79	77 - 129	-20.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
2ND SOURCE ICV

Run #13 Filename P230736 #1 Samp: 1 Inj: 1 Acquired: 24-AUG-14 16:10:02
Processed: 25-AUG-14 09:49:03 LAB. ID: 54819

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	8.967e+03	1.163e+04	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	7.811e+04	5.069e+04	1.54	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:23	7.885e+04	5.149e+04	1.53	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:01	6.550e+04	5.227e+04	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.891e+04	5.519e+04	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.358e+04	5.196e+04	1.22	yes	no	1.001
7	Unk	1,2,3,7,8,9-HxCDF	37:23	4.484e+04	3.600e+04	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	5.084e+04	4.899e+04	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	2.945e+04	2.938e+04	1.00	yes	no	1.000
10	Unk	OCDF	42:32	4.485e+04	5.047e+04	0.89	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:06	6.857e+03	8.484e+03	0.81	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:39	5.655e+04	3.525e+04	1.60	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	5.150e+04	4.102e+04	1.26	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.790e+04	3.785e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:05	5.218e+04	4.113e+04	1.27	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	3.705e+04	3.569e+04	1.04	yes	no	1.000
17	Unk	OCDD	42:18	4.965e+04	5.606e+04	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	9.511e+04	1.189e+05	0.80	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.683e+05	1.058e+05	1.59	yes	no	1.139
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.582e+05	9.958e+04	1.59	yes	no	1.170
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.958e+04	1.336e+05	0.52	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.427e+04	1.437e+05	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	7.288e+04	1.389e+05	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.995e+04	9.574e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	4.671e+04	1.043e+05	0.45	yes	no	1.042
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	2.623e+04	6.149e+04	0.43	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	6.688e+04	8.453e+04	0.79	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:39	1.129e+05	7.104e+04	1.59	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	8.622e+04	6.886e+04	1.25	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	9.850e+04	7.758e+04	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	7.258e+04	6.909e+04	1.05	yes	no	1.066
32	IS	13C-OCDD	42:18	9.340e+04	1.034e+05	0.90	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:31	6.605e+04	8.344e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:04	9.687e+04	7.440e+04	1.30	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	1.592e+04				no	1.021

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
2ND SOURCE ICV

Run #13 Filename P230736 Samp: 1 Inj: 1 Acquired: 24-AUG-14 16:10:02
Processed: 25-AUG-14 09:49:03 LAB. ID: 54819

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.87e+06	4.08e+02	4.6e+03	2.37e+06	2.59e+03	9.1e+02
2	1,2,3,7,8-PeCDF	1.48e+07	1.95e+03	7.6e+03	9.71e+06	2.21e+03	4.4e+03
3	2,3,4,7,8-PeCDF	1.58e+07	1.95e+03	8.1e+03	1.04e+07	2.21e+03	4.7e+03
4	1,2,3,4,7,8-HxCDF	1.42e+07	1.22e+03	1.2e+04	1.14e+07	1.63e+03	7.0e+03
5	1,2,3,6,7,8-HxCDF	1.47e+07	1.22e+03	1.2e+04	1.18e+07	1.63e+03	7.3e+03
6	2,3,4,6,7,8-HxCDF	1.38e+07	1.22e+03	1.1e+04	1.13e+07	1.63e+03	7.0e+03
7	1,2,3,7,8,9-HxCDF	9.82e+06	1.22e+03	8.1e+03	7.76e+06	1.63e+03	4.8e+03
8	1,2,3,4,6,7,8-HpCDF	1.11e+07	8.52e+03	1.3e+03	1.08e+07	6.66e+03	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	6.06e+06	8.52e+03	7.1e+02	6.04e+06	6.66e+03	9.1e+02
10	OCDF	8.05e+06	6.16e+02	1.3e+04	8.73e+06	1.47e+03	5.9e+03
11	2,3,7,8-TCDD	1.47e+06	6.24e+02	2.4e+03	1.81e+06	6.44e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.15e+07	1.44e+03	7.9e+03	7.23e+06	4.32e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	1.19e+07	6.24e+02	1.9e+04	9.56e+06	1.13e+03	8.5e+03
14	1,2,3,6,7,8-HxCDD	1.06e+07	6.24e+02	1.7e+04	8.34e+06	1.13e+03	7.4e+03
15	1,2,3,7,8,9-HxCDD	1.18e+07	6.24e+02	1.9e+04	9.33e+06	1.13e+03	8.3e+03
16	1,2,3,4,6,7,8-HpCDD	8.09e+06	1.66e+03	4.9e+03	7.78e+06	1.36e+03	5.7e+03
17	OCDD	8.90e+06	4.20e+02	2.1e+04	1.01e+07	8.68e+02	1.2e+04
18	13C-2,3,7,8-TCDF	1.93e+07	1.57e+03	1.2e+04	2.41e+07	7.72e+02	3.1e+04
19	13C-1,2,3,7,8-PeCDF	3.23e+07	1.64e+03	2.0e+04	2.04e+07	1.82e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	3.22e+07	1.64e+03	2.0e+04	2.03e+07	1.82e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.52e+07	9.36e+02	1.6e+04	2.91e+07	2.03e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	1.59e+07	9.36e+02	1.7e+04	3.09e+07	2.03e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.57e+07	9.36e+02	1.7e+04	3.00e+07	2.03e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	1.09e+07	9.36e+02	1.2e+04	2.07e+07	2.03e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.04e+07	2.98e+03	3.5e+03	2.29e+07	1.16e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.43e+06	2.98e+03	1.8e+03	1.25e+07	1.16e+04	1.1e+03
27	13C-2,3,7,8-TCDD	1.45e+07	4.30e+03	3.4e+03	1.83e+07	1.72e+03	1.1e+04
28	13C-1,2,3,7,8-PeCDD	2.30e+07	9.92e+02	2.3e+04	1.45e+07	5.08e+02	2.8e+04
29	13C-1,2,3,4,7,8-HxCDD	1.98e+07	7.88e+02	2.5e+04	1.59e+07	8.72e+02	1.8e+04
30	13C-1,2,3,6,7,8-HxCDD	2.17e+07	7.88e+02	2.8e+04	1.71e+07	8.72e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.58e+07	2.23e+03	7.1e+03	1.48e+07	1.33e+03	1.1e+04
32	13C-OCDD	1.67e+07	5.24e+02	3.2e+04	1.87e+07	5.92e+02	3.2e+04
33	13C-1,2,3,4-TCDD	1.41e+07	4.30e+03	3.3e+03	1.78e+07	1.72e+03	1.0e+04
34	13C-1,2,3,7,8,9-HxCDD	2.11e+07	7.88e+02	2.7e+04	1.67e+07	8.72e+02	1.9e+04
35	37Cl-2,3,7,8-TCDD	3.41e+06	1.54e+03	2.2e+03			

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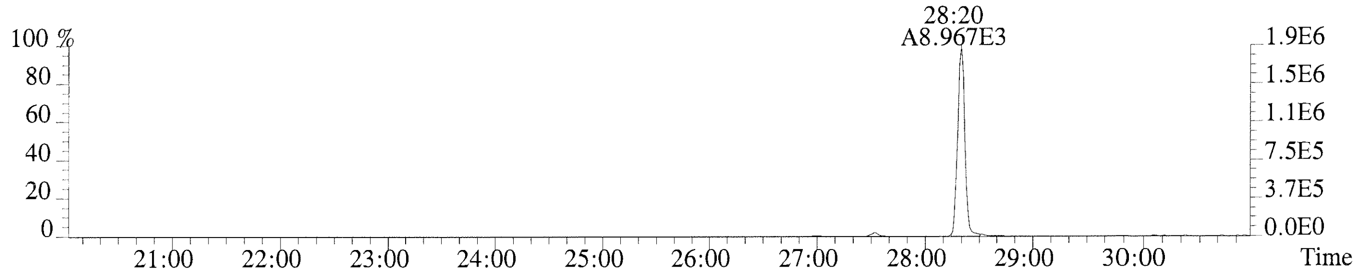
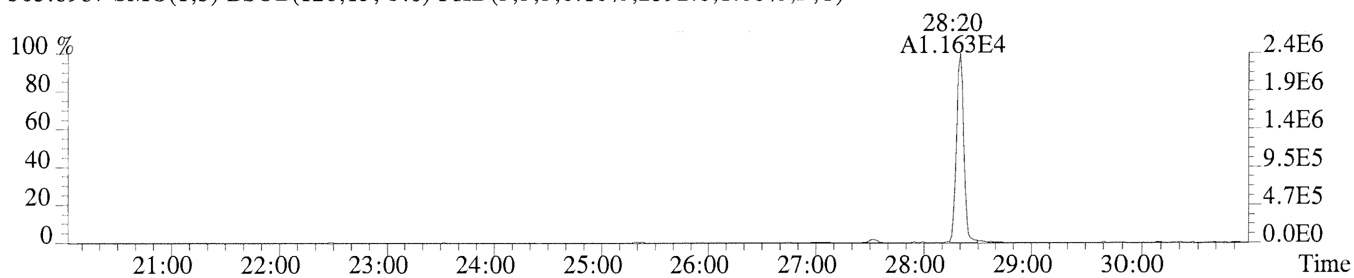
XLSN

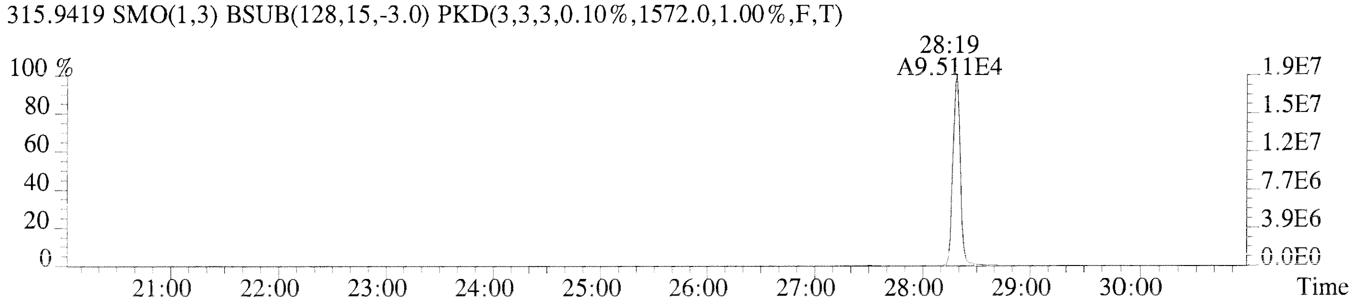
File:P230736 #1-687 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



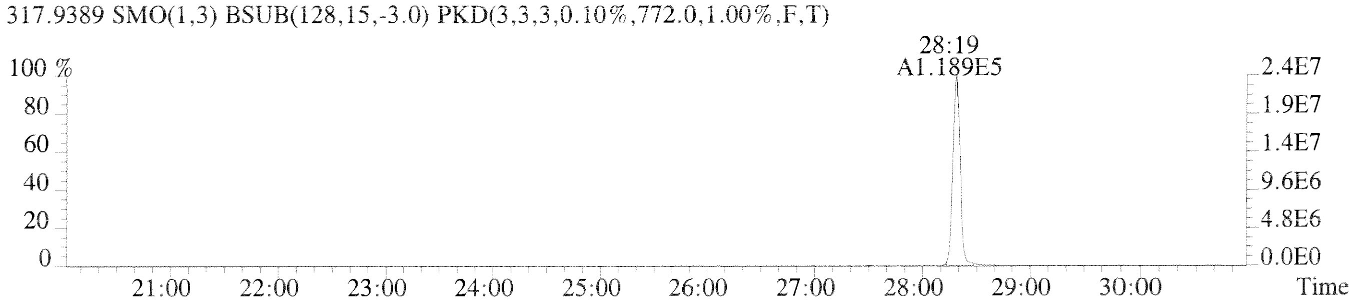
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



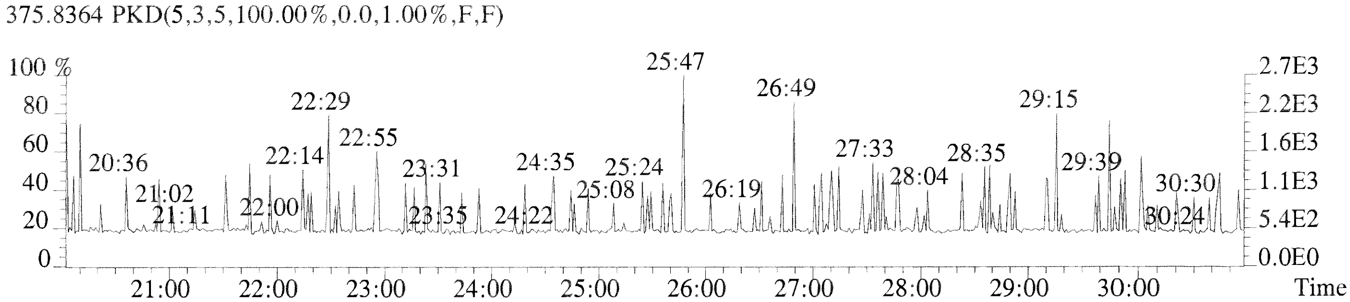
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



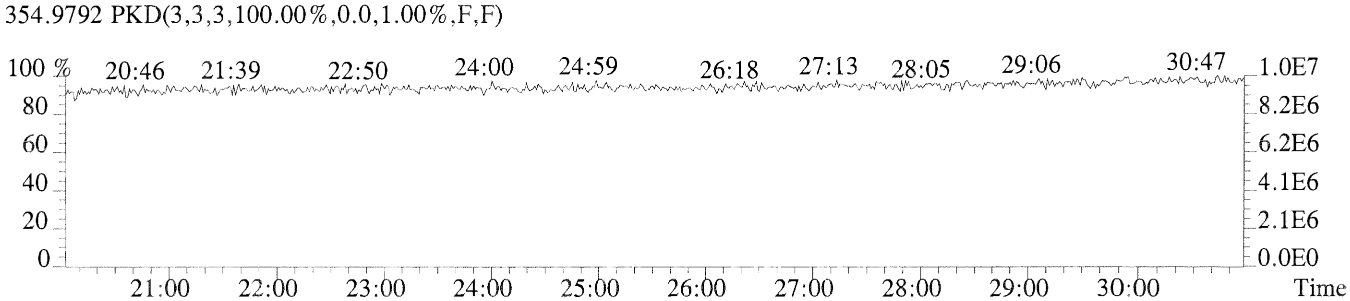
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

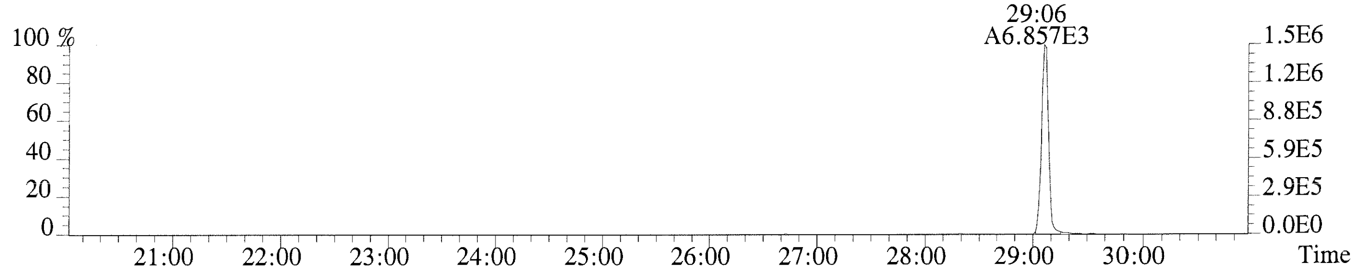


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

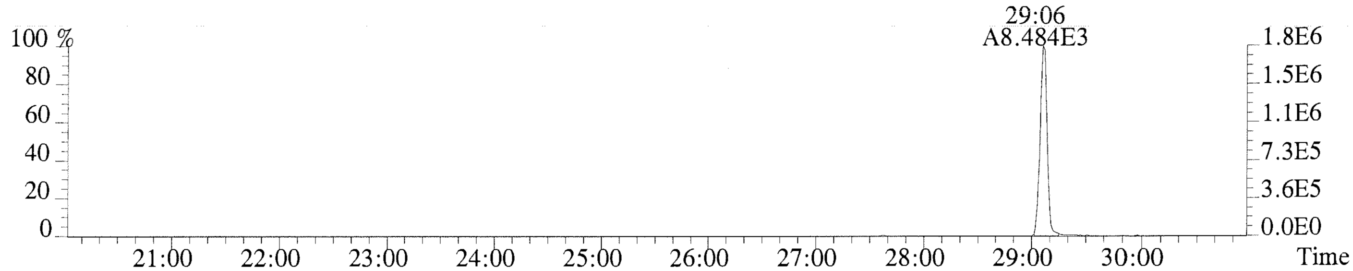


File:P230736 #1-687 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV

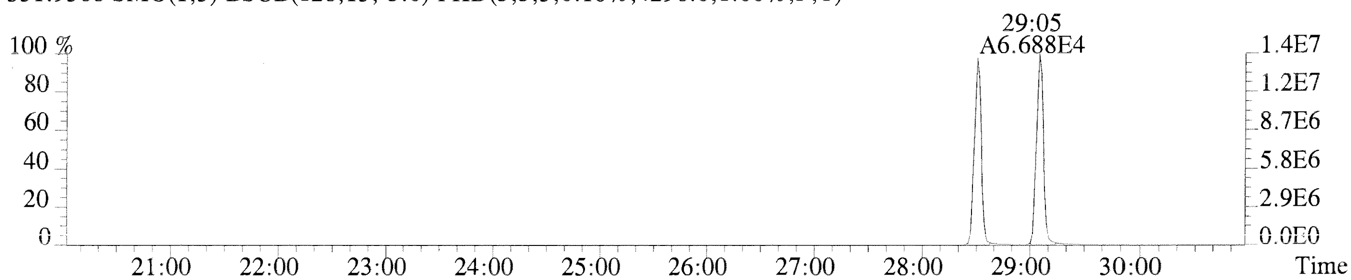
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



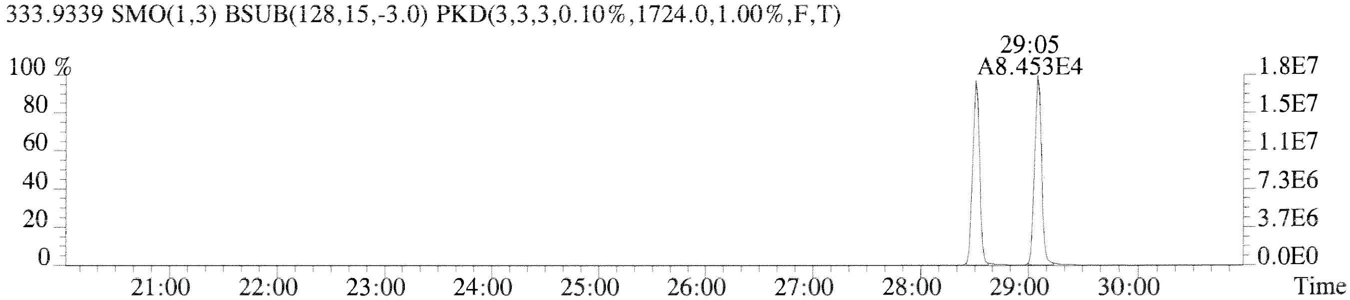
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



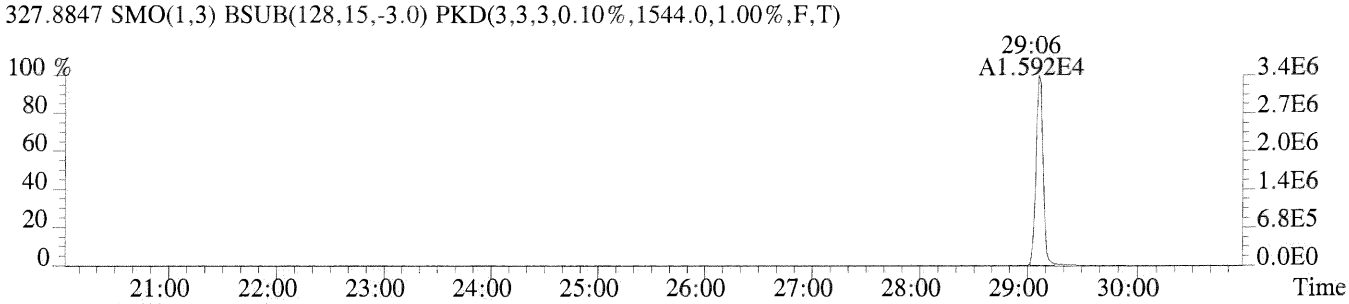
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4296.0,1.00%,F,T)



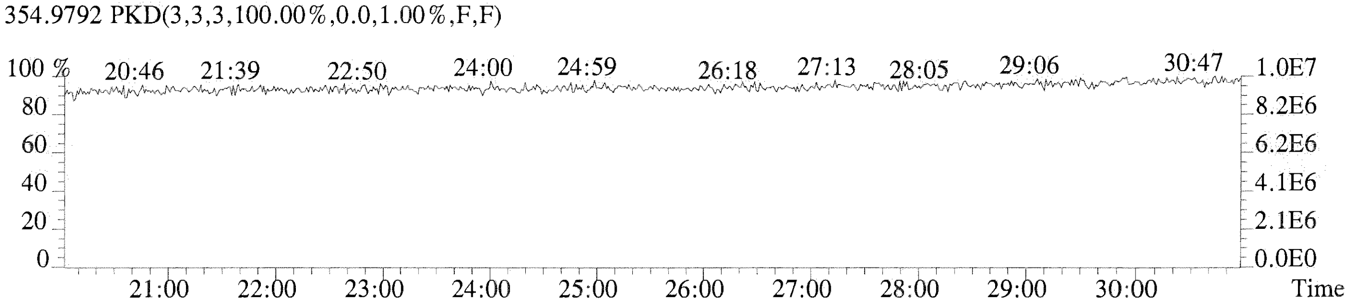
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)

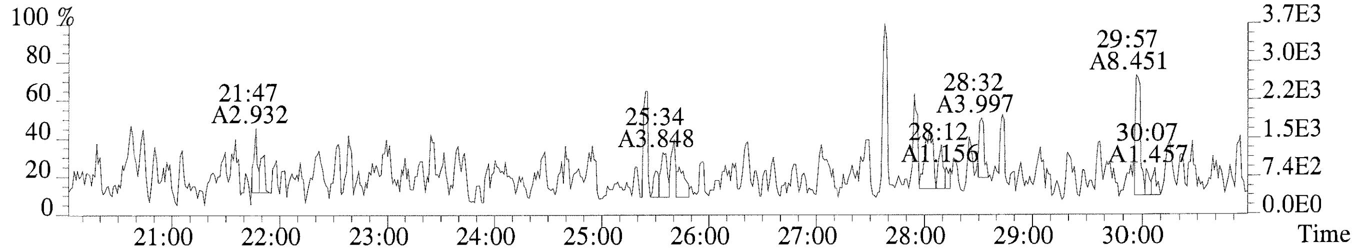


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

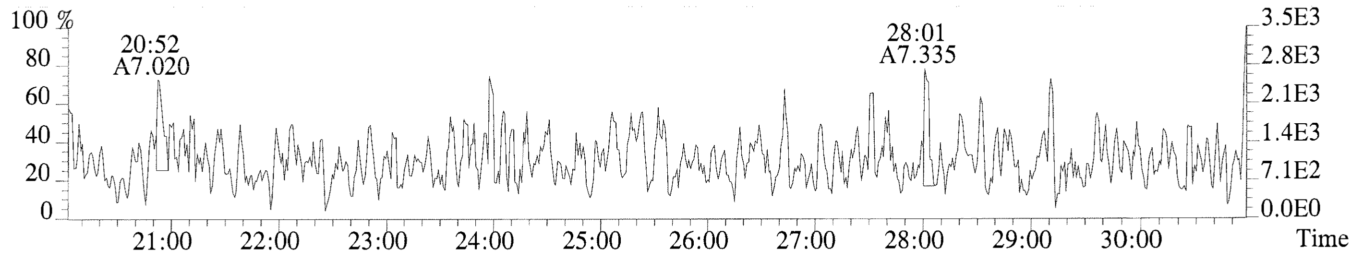


File:P230736 #1-687 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV

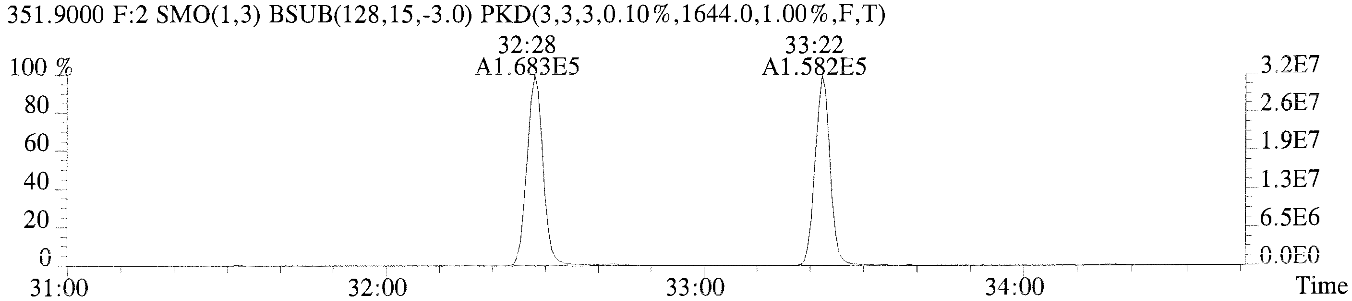
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



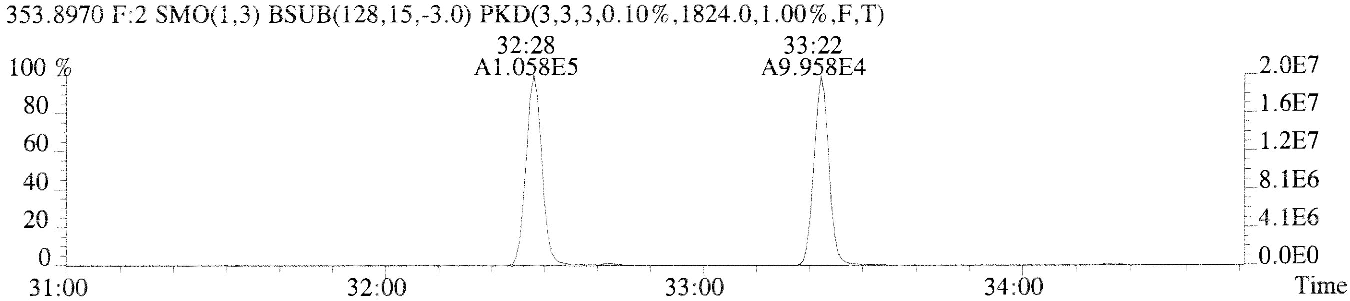
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



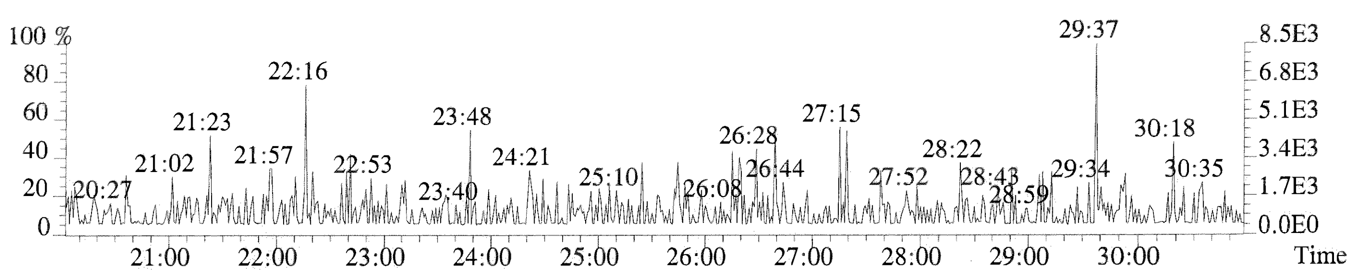
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



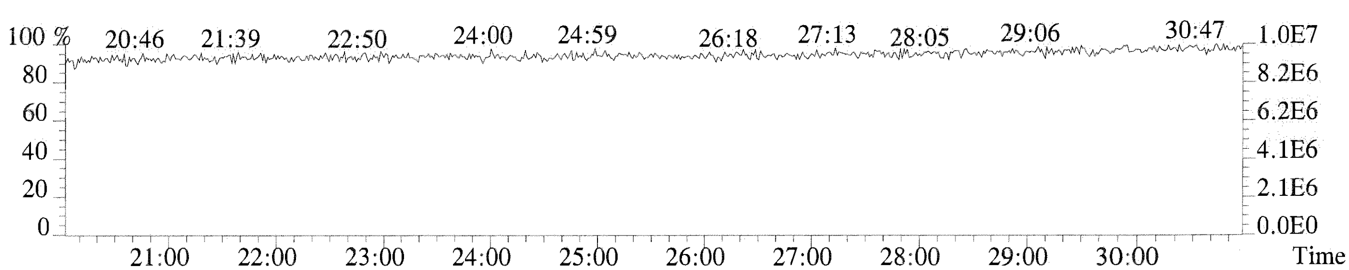
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



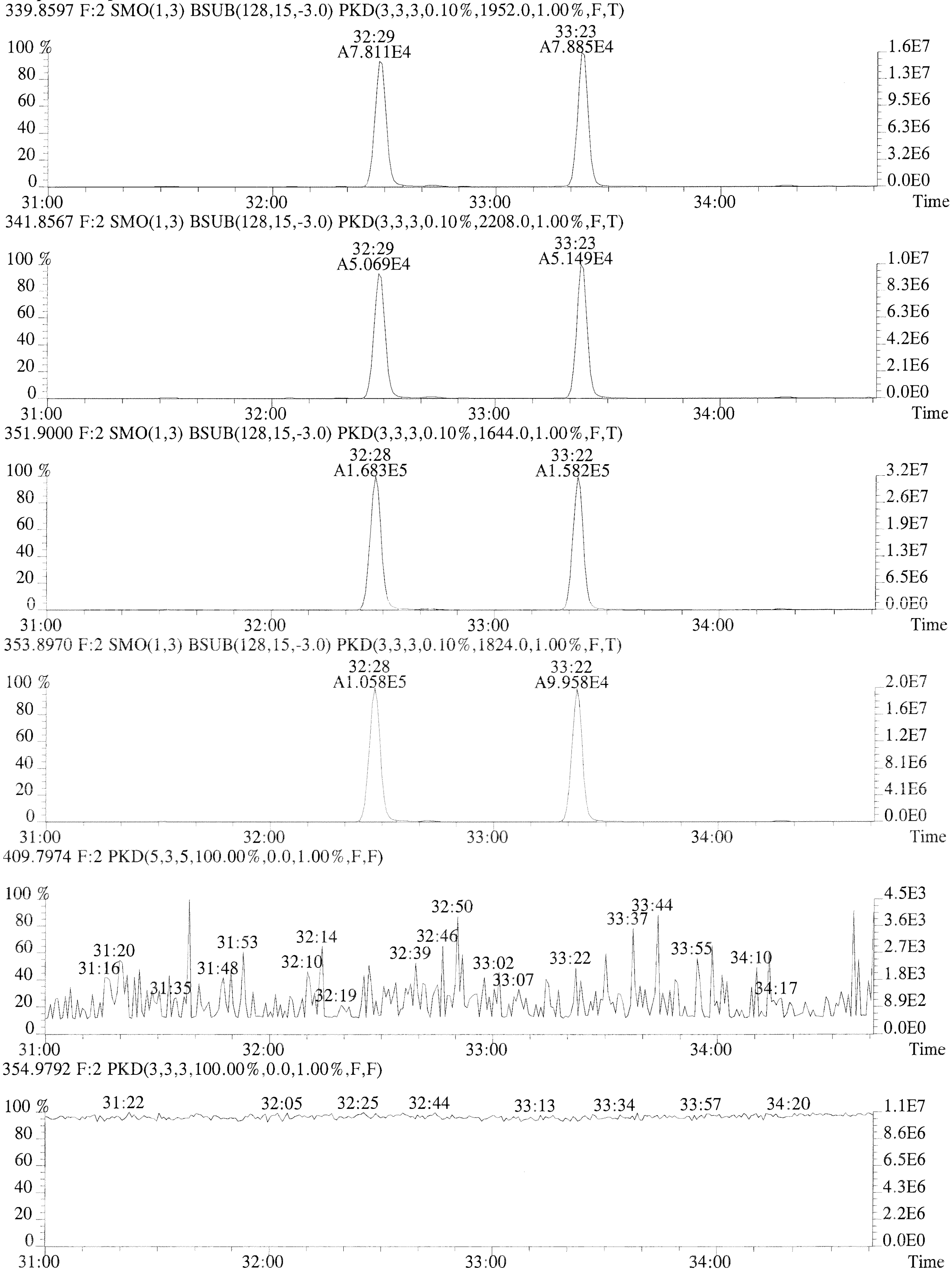
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



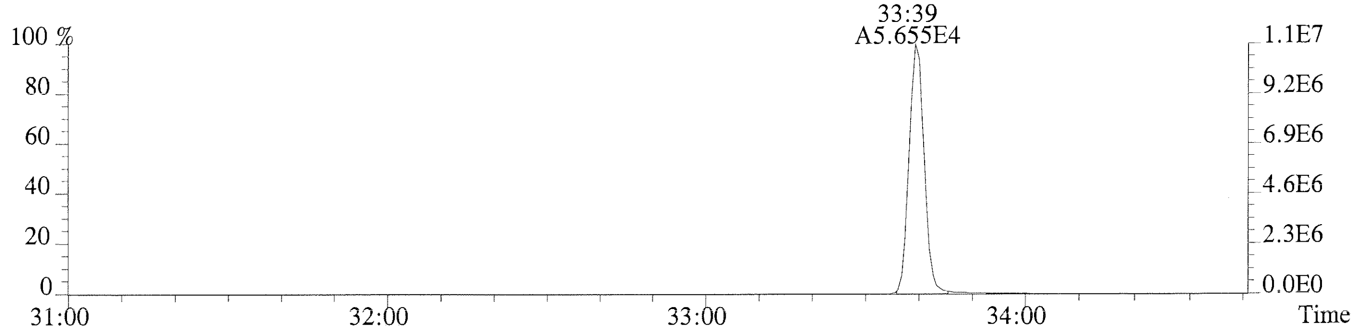
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230736 #1-335 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV



File:P230736 #1-335 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



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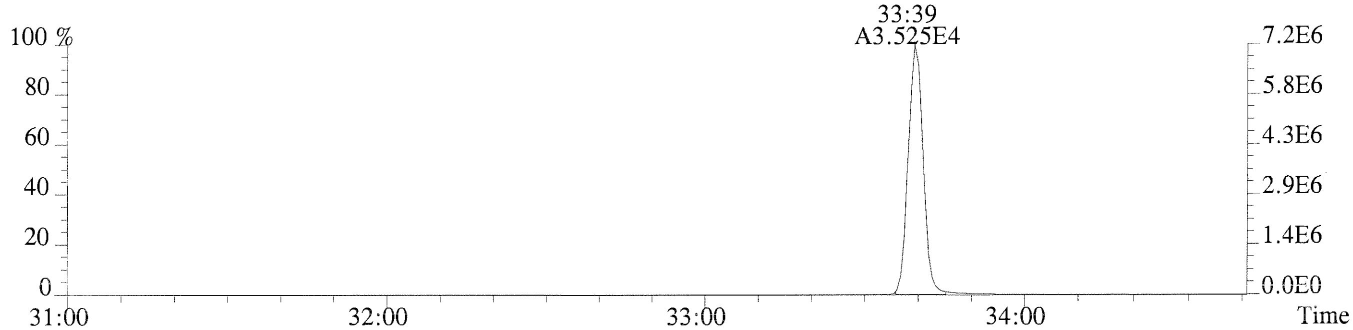

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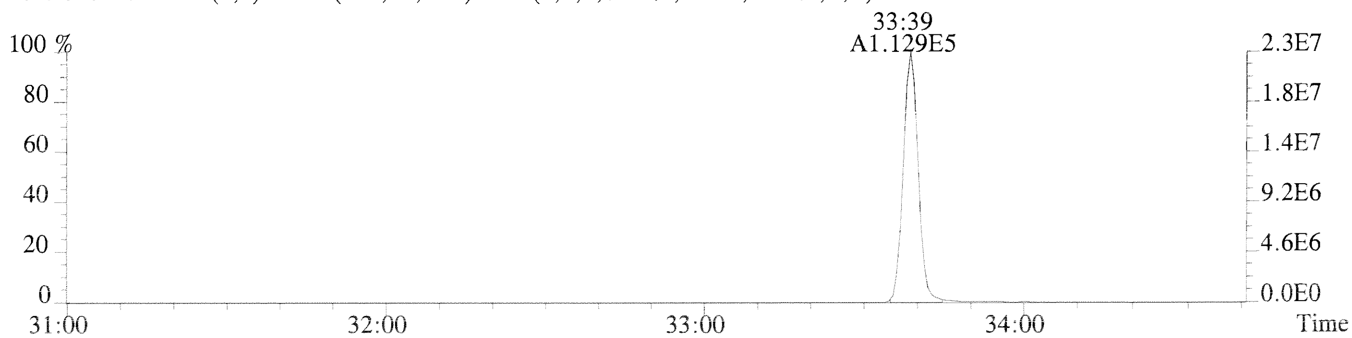

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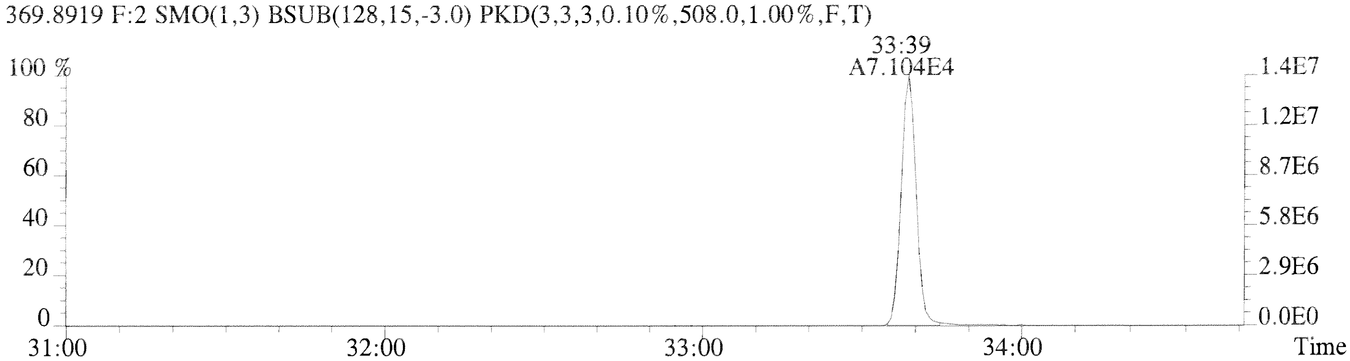

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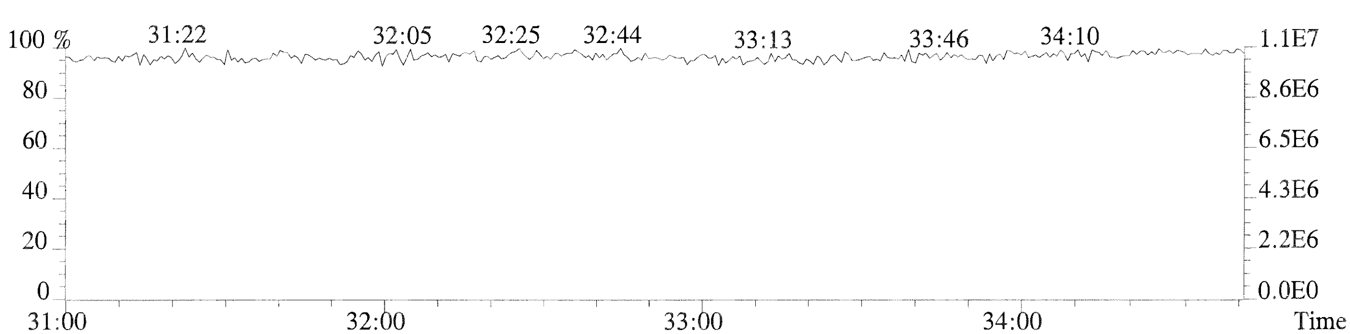

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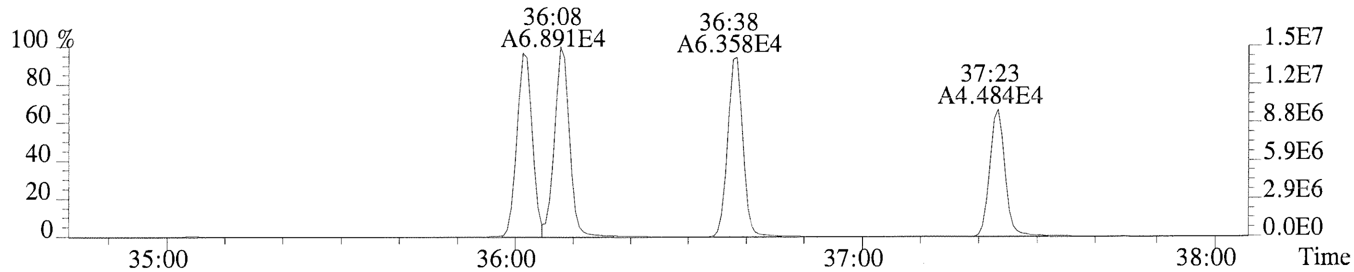
Sample#1 Exp:2ND SOURCE CCV
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



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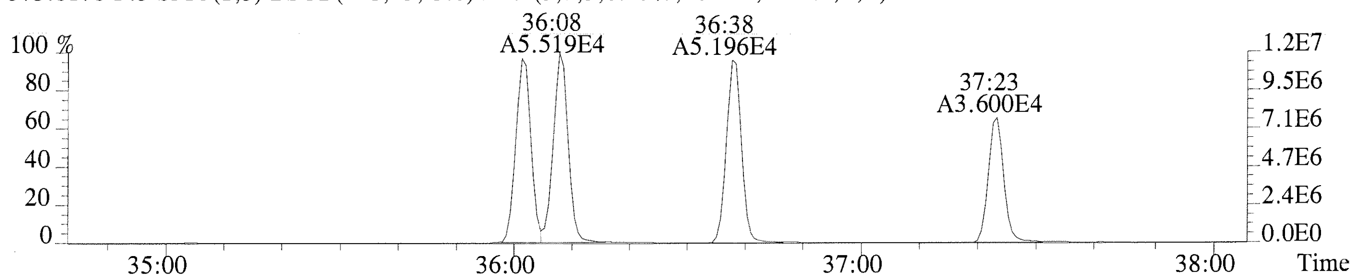

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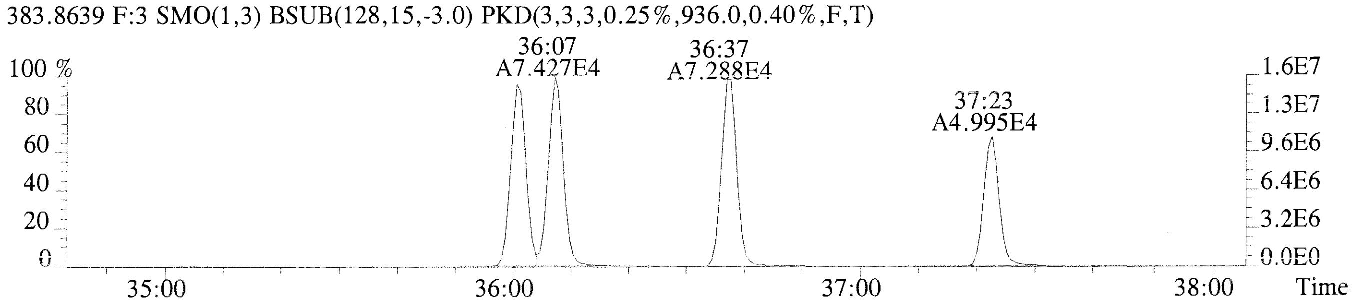

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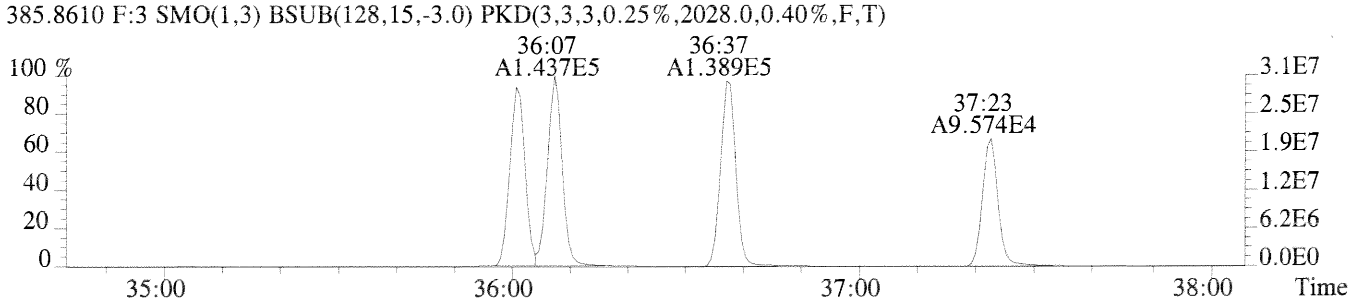
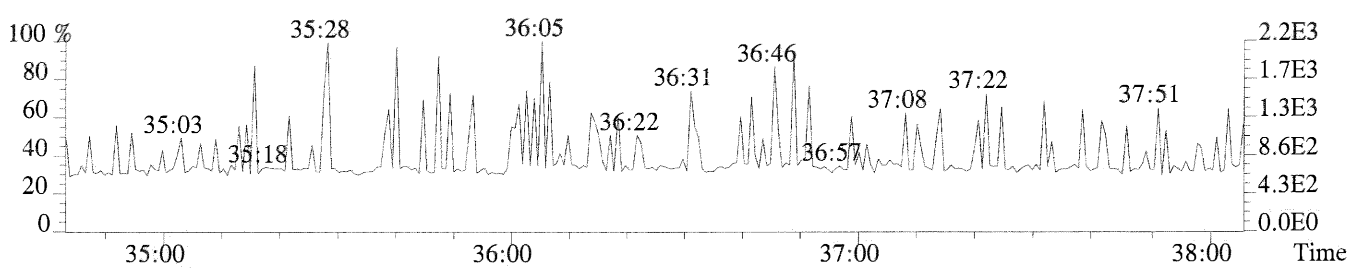
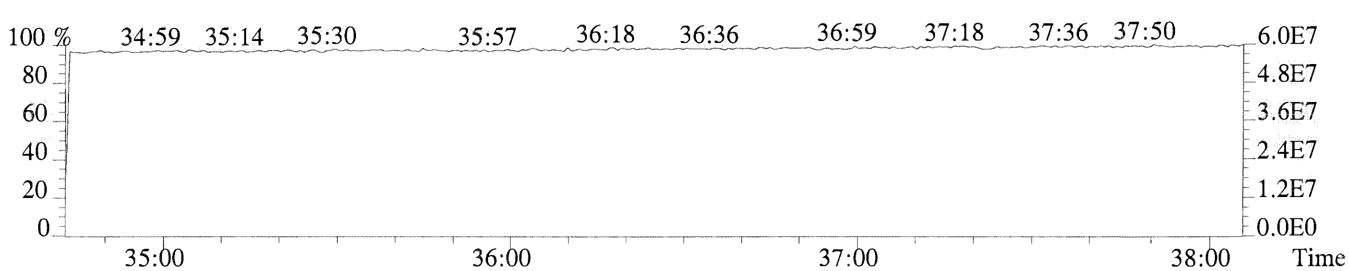


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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Sample#1 Exp:2ND SOURCE CCV
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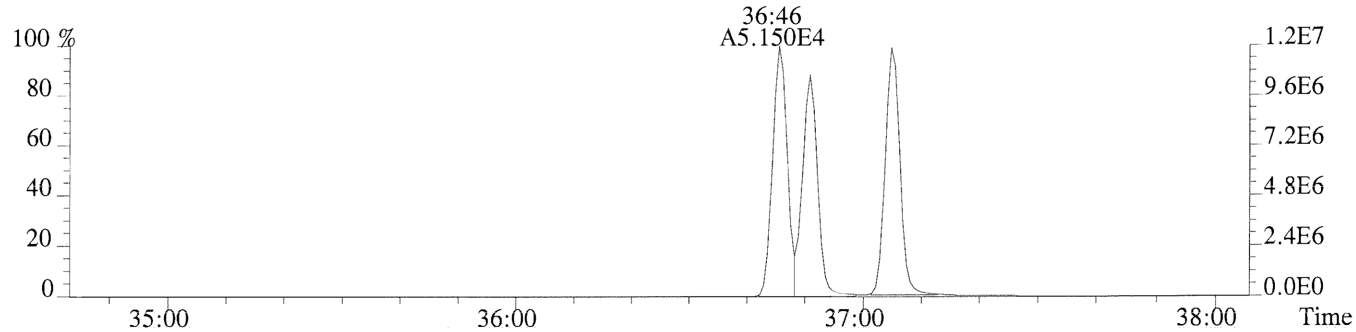

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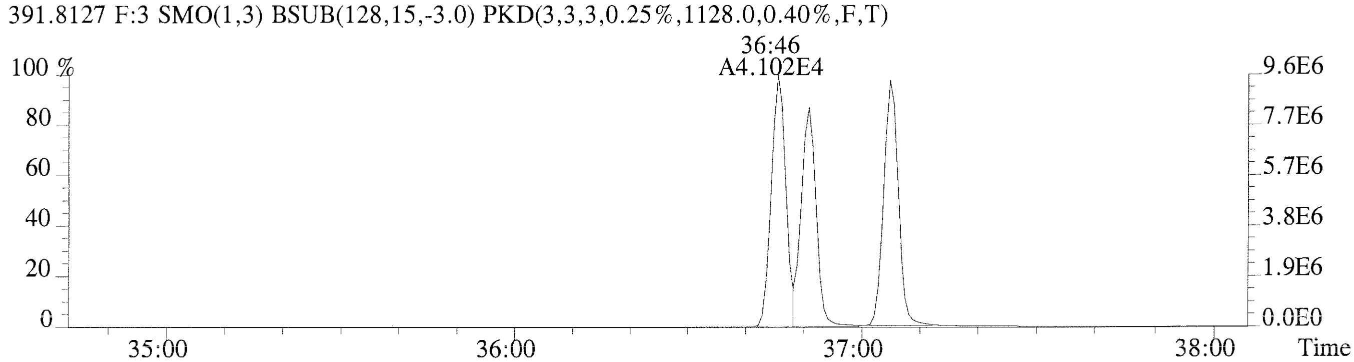

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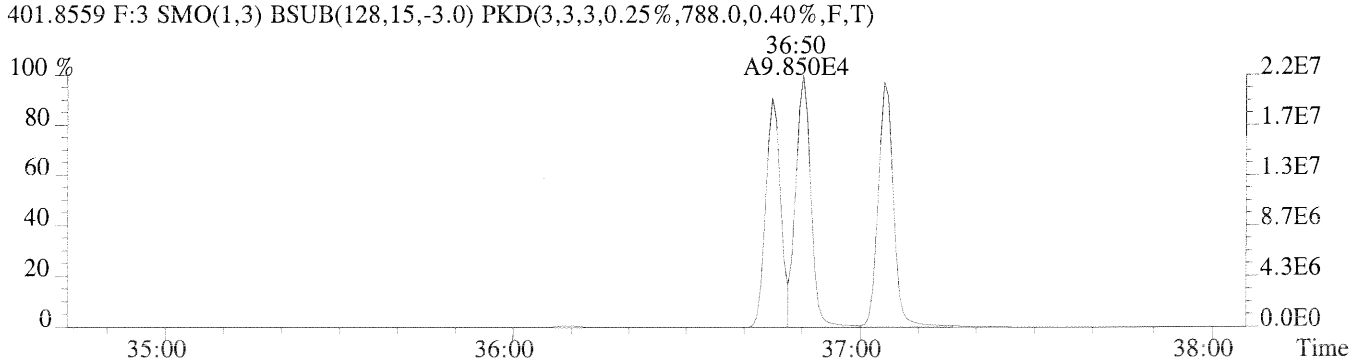

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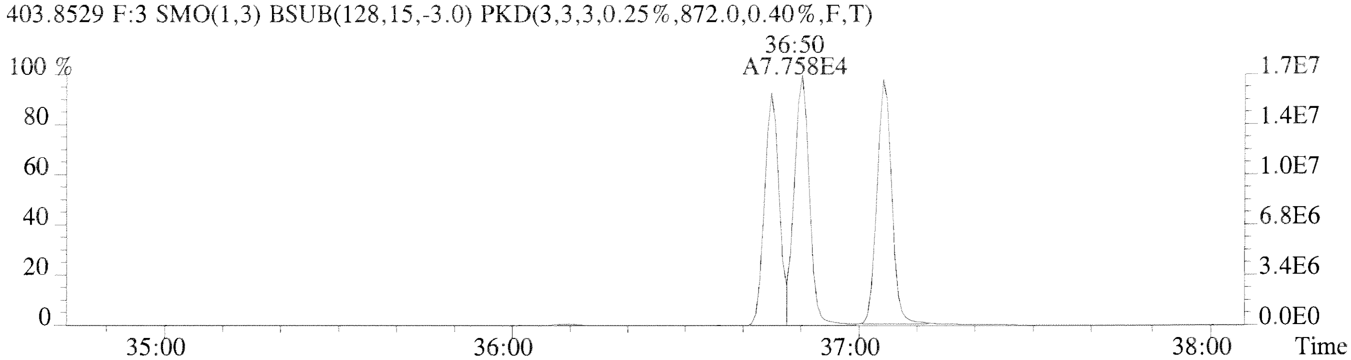
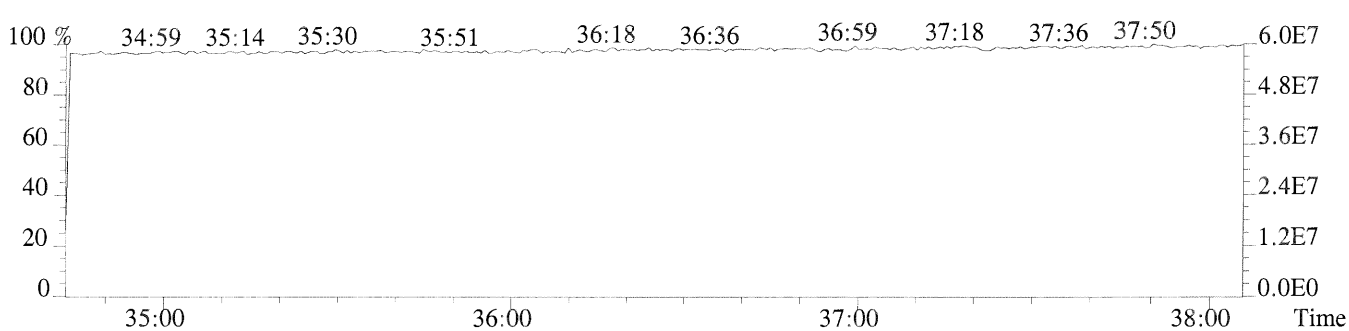


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230736 #1-234 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV

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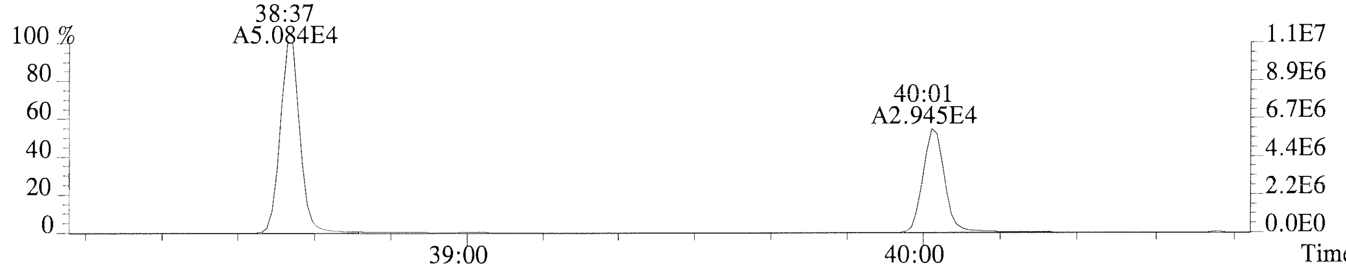

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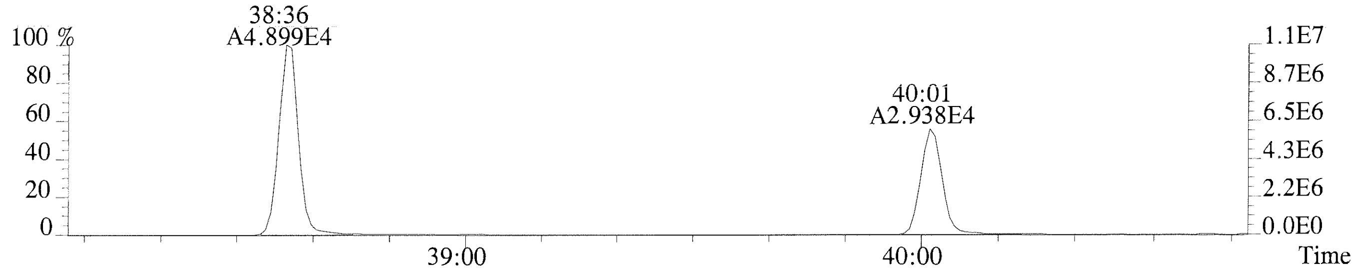

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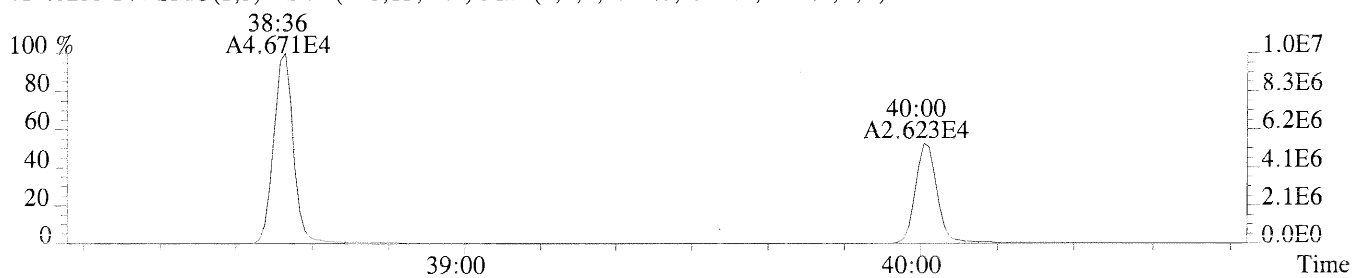

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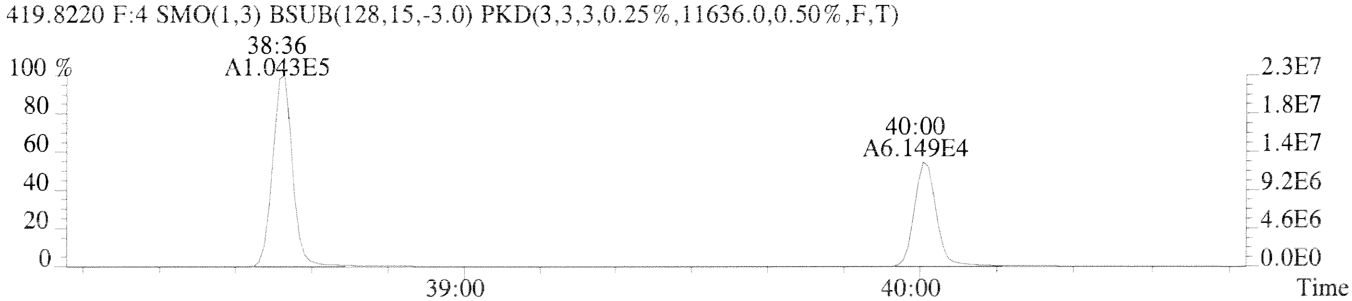

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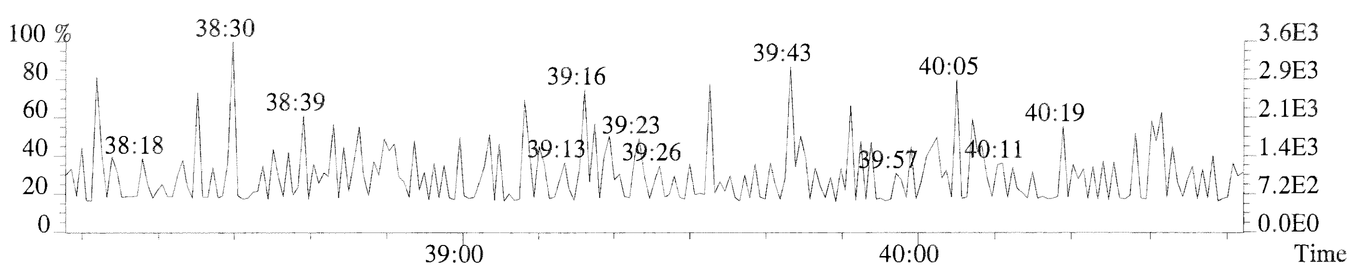
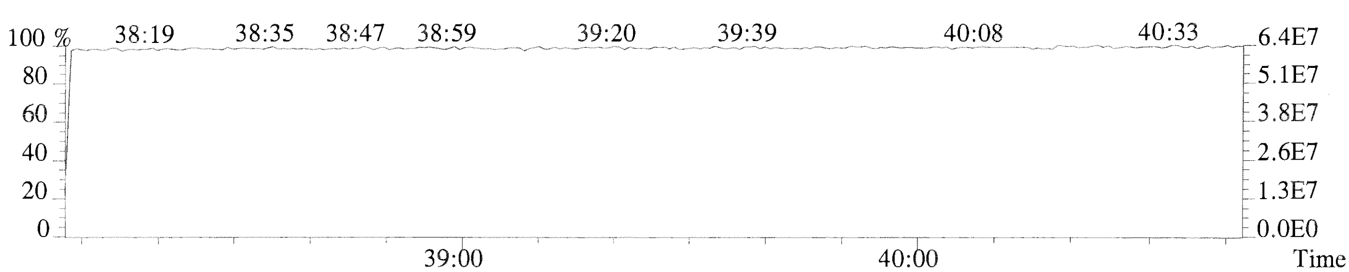


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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Sample#1 Exp:2ND SOURCE CCV
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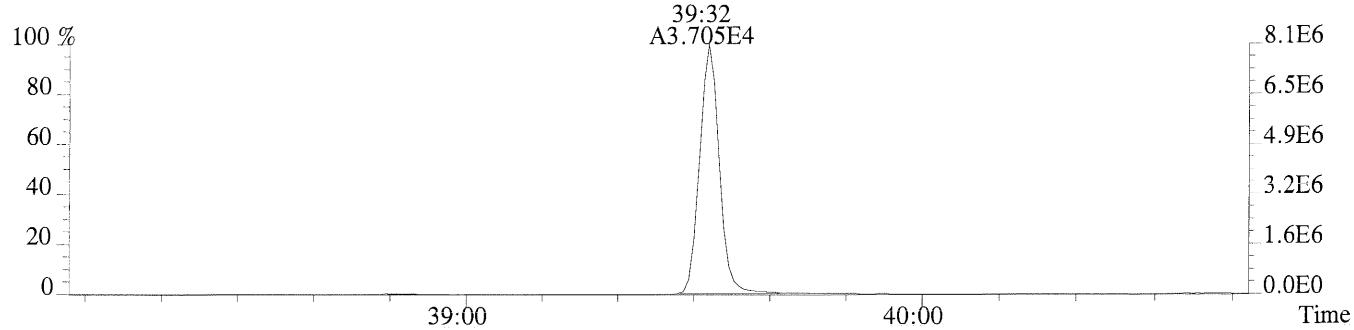

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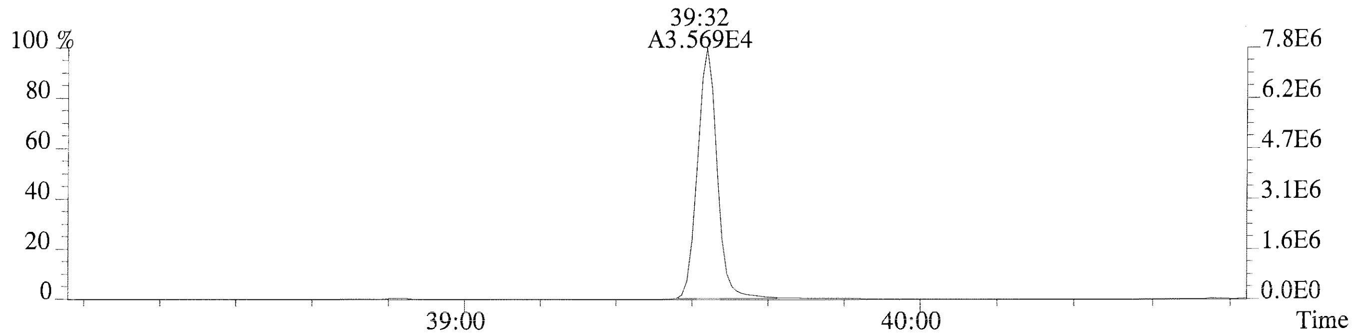

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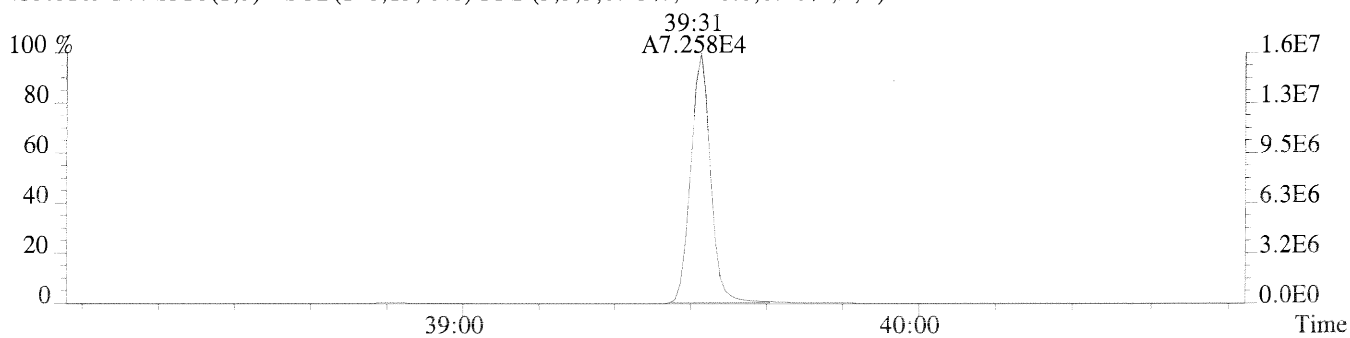

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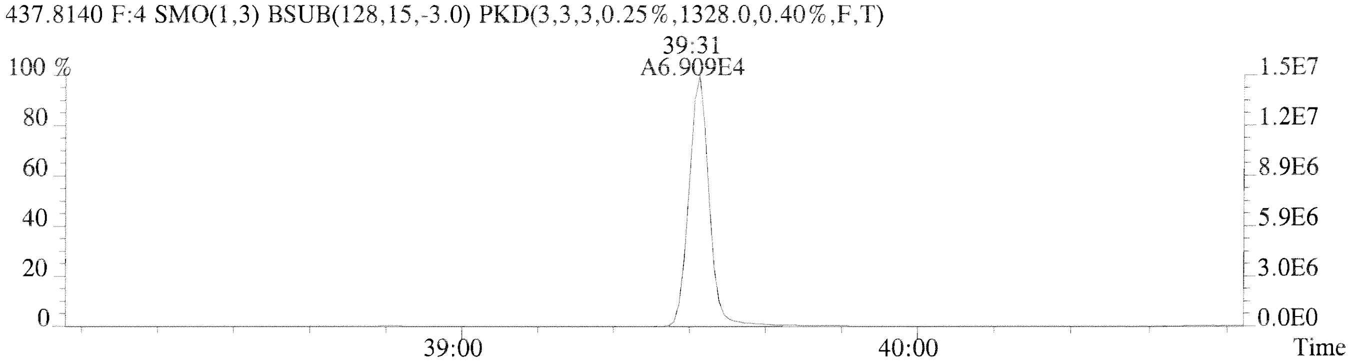
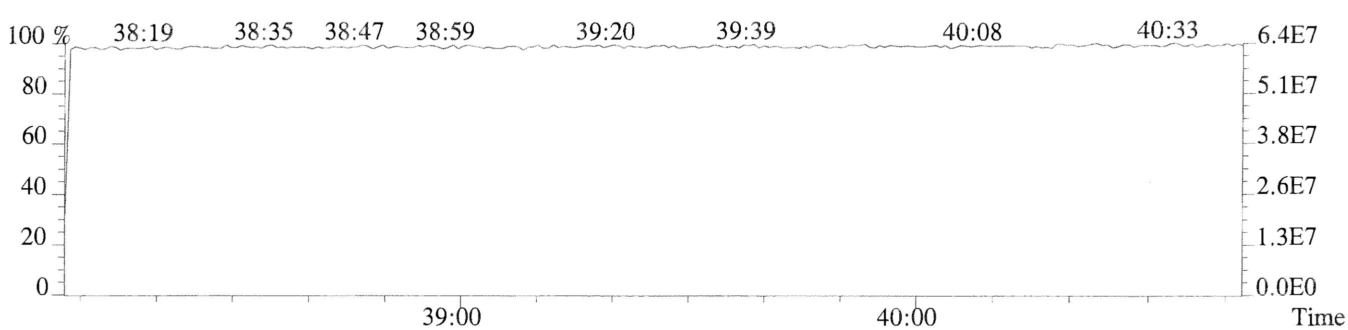
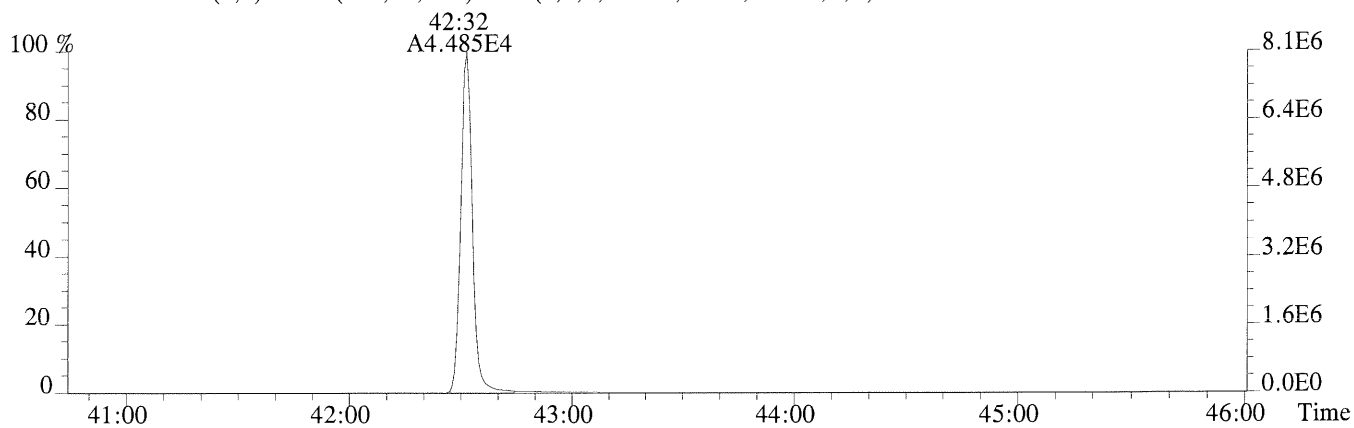


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

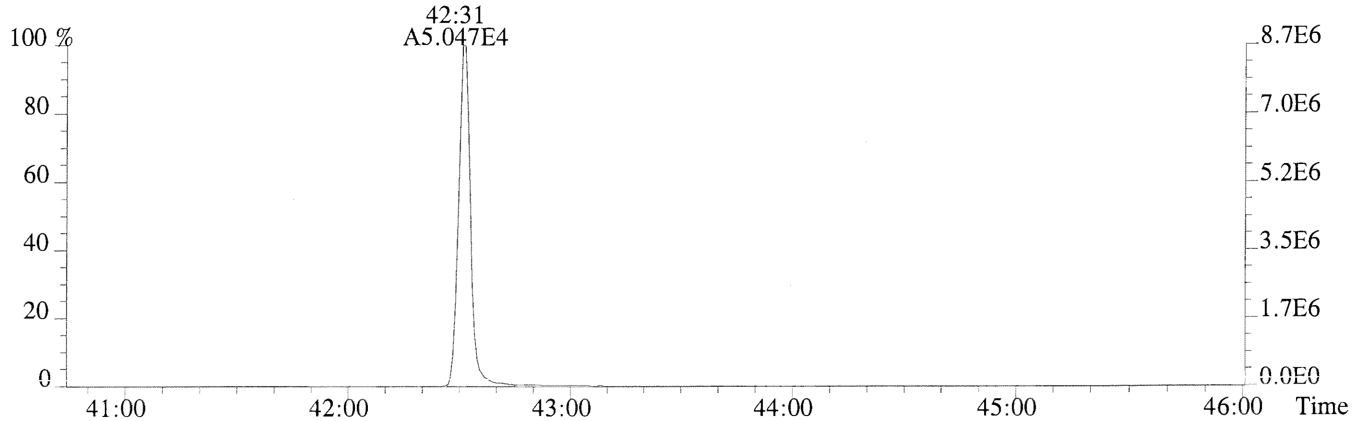


File:P230736 #1-485 Acq:24-AUG-2014 16:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE CCV

441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1468.0,0.40%,F,T)



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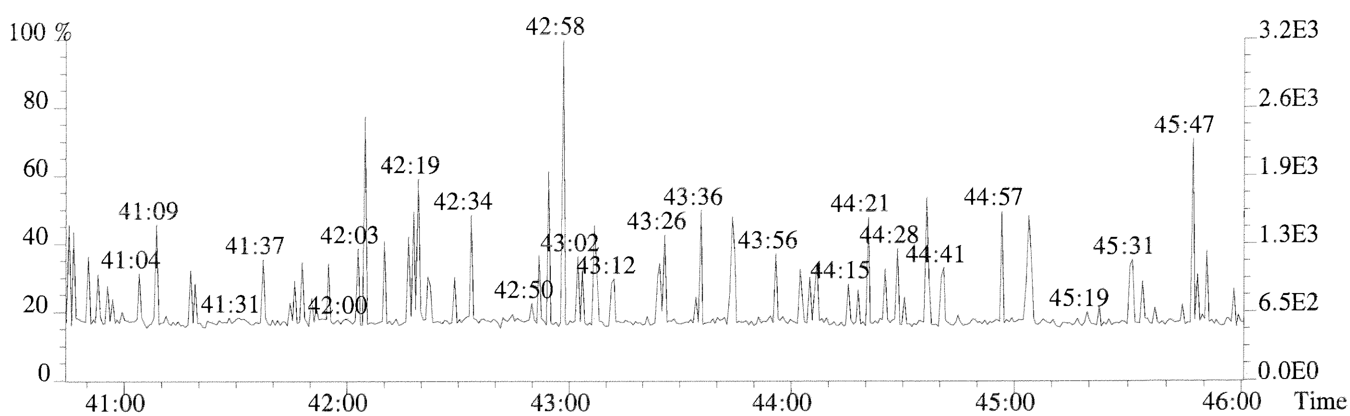

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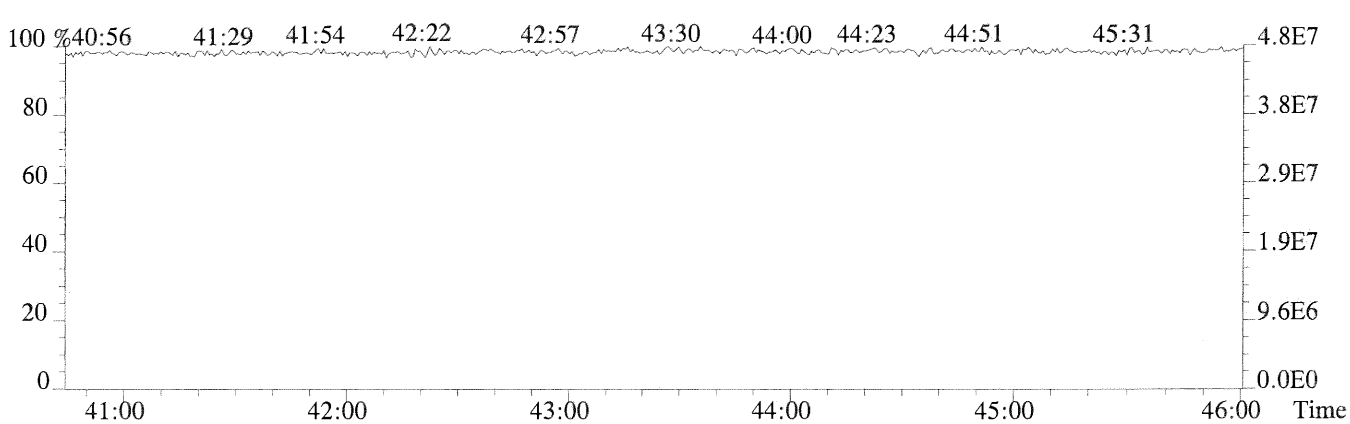

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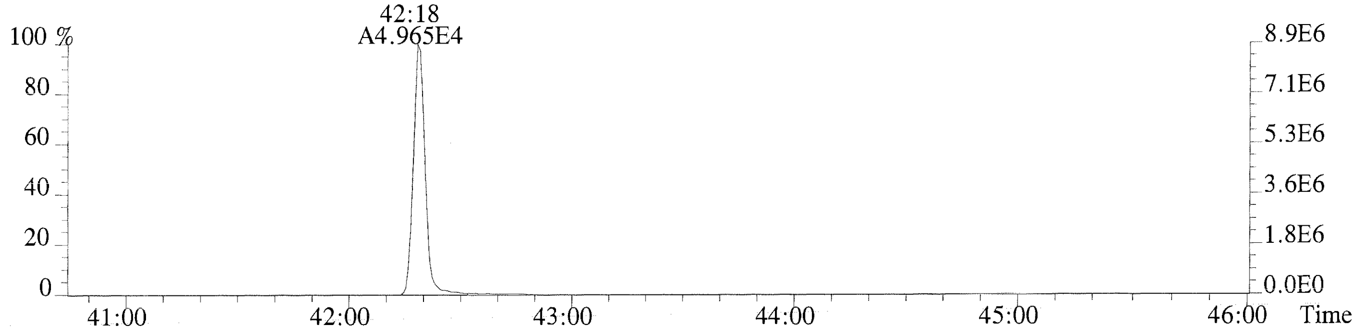
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



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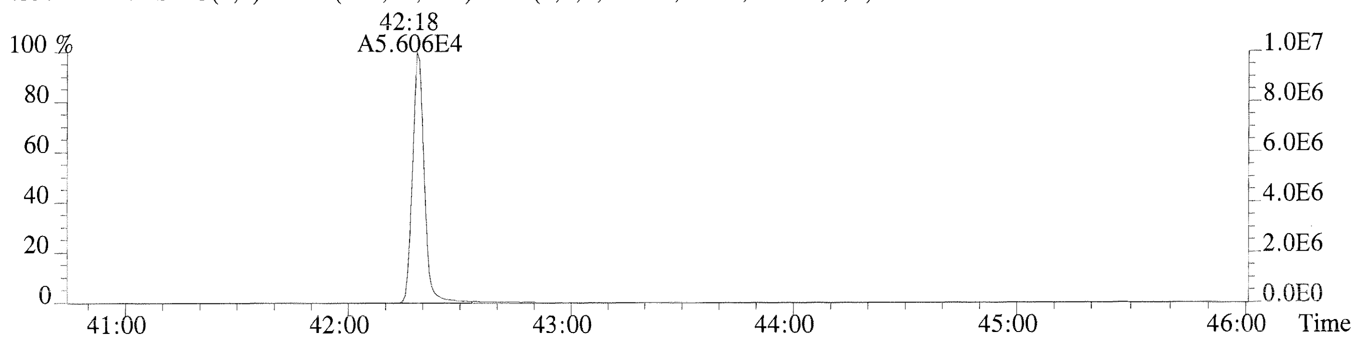

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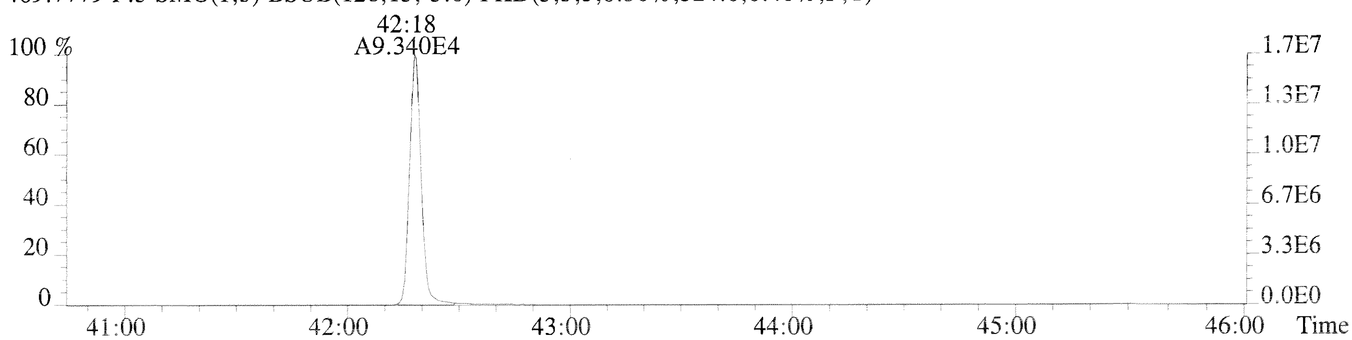

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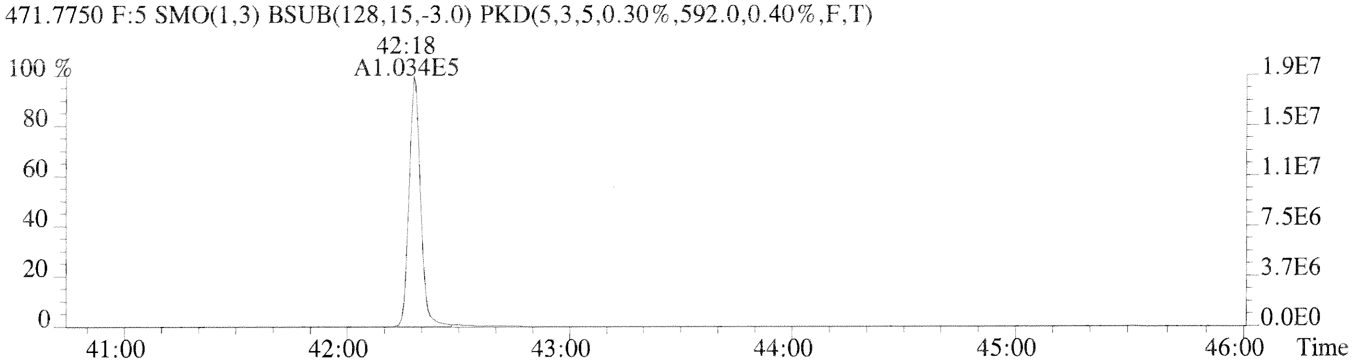

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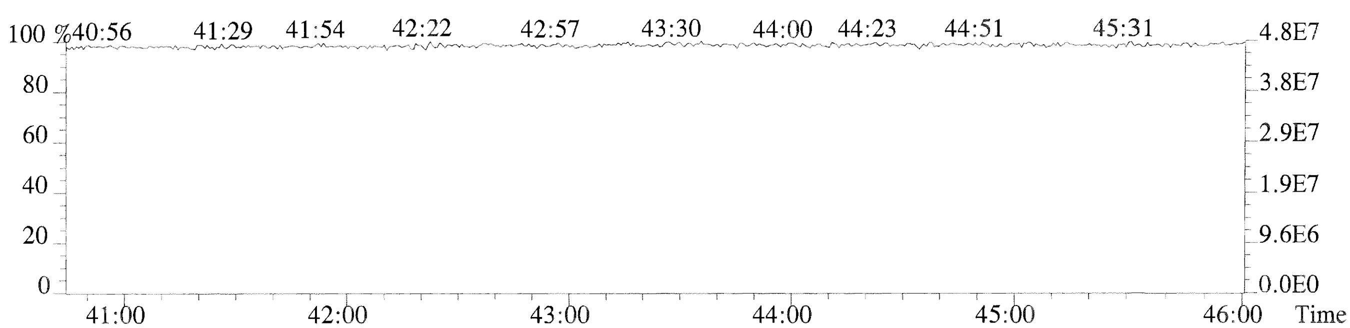

Appendix I

Quality Assurance Sampling Plan

QUALITY ASSURANCE SAMPLING PLAN
ADDENDUM #1
FOR
SBA SHIPYARDS SITE INSPECTION
JENNINGS, JEFFERSON DAVIS PARISH, LOUISIANA

Prepared For

U.S. Environmental Protection Agency Region 6
1445 Ross Ave.
Dallas, Texas 75202

Date Prepared
August 19, 2014

Prepared by

Dynamac Corporation
1323 Columbia Drive, Suite 307
Richardson, Texas 75081

QUALITY ASSURANCE SAMPLING PLAN
ADDENDUM #1
FOR
SBA SHIPYARDS SITE IINSPECTION
JENNINGS, JEFFERSON DAVIS PARISH, LOUISIANA

Date Prepared
August 19, 2014

Reference Numbers

Contract No:	EP-W-06-077
TDD Number:	TO-0009-12-10-02
CERCLIS No:	LAD008434185
EPA SAM:	Brenda Nixon Cook
START PM:	Paul Moisan

Signatures:

Paul Moisan
Dynamac START Project Manager

Brenda Nixon Cook
U.S. EPA Site Assessment Manager

Debra Pandak
Dynamac START Program Manager

QUALITY ASSURANCE SAMPLING PLAN
ADDENDUM #1
FOR
SBA SHIPYARDS SITE INSPECTION
JENNINGS, JEFFERSON DAVIS PARISH, LOUISIANA
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1.0 INTRODUCTION

Dynamac Corporation (Dynamac), Superfund Technical Assessment and Response Team (START) is tasked by the U.S. Environmental Protection Agency (EPA), Region 6, under Technical Direction Document (TDD) No. TO-0009-12-10-02, to conduct an Expanded Site Inspection (ESI) at SBA Shipyards (CERCLIS No. LAD008434185), located in Jennings, Jefferson Davis Parish, Louisiana (LA).

This Quality Assurance Sampling Plan (QASP) addendum is prepared in partial fulfillment of the TDD. This QASP addendum is designed to guide field operations during collection of sediment and groundwater and describes Quality Assurance (QA) measures that will be implemented during the course of the ESI field activities.

2.0 OBJECTIVES

The objectives of the ESI, per the EPA Site Assessment Manager (SAM) are to:

1) determine background and down gradient levels of potential hazardous substances via collection of sediment samples from the Mermentau River.

2) collect groundwater samples from one monitoring well located in the site wetland area for chemical analysis to document contamination at the site; and

3) collect sediment samples from the contiguous wetlands for chemical analysis to document if a release has or is occurring.

3.0 BACKGROUND

Site background information is available in the *SBA Shipyard Quality Assurance Sampling Plan, May 30, 2013.*

4.0 FIELD OPERATIONS

4.1 Concept Of Operations

4.1.1 Schedule

Field work will tentatively occur the week of September 15, 2014 and is anticipated to require approximately six (6) days to complete; including mobilization and demobilization.

4.1.2 Health and Safety

Field activities will be conducted in accordance with EPA Standard Operating Procedures (SOPs), the Generic QAPP, and the site-specific Health and Safety Plan (HASP).

4.1.3 Site Access and Logistics

Access to the sample locations will be obtained by START and EPA.

4.2 Sampling Design

To accomplish the above-mentioned objectives, START will collect one groundwater from an existing on-site monitor well located in the wetland, three (3) sediment samples from the wetland area south of the on-site slips and docks, two sediments from Source 8, and seven (7) sediment samples from the Mermentau River (Figure 1) (Table 3)

START will collect sediment samples to further characterize the surface migration of contamination from the site to Mermentau River and the adjacent wetlands. Table 1 presents the anticipated number of samples, location descriptions, and proposed laboratory analyses. Figure 1 illustrates the proposed sample locations. Dedicated sampling equipment will be used wherever possible in an effort to eliminate any potential cross contamination concerns. All sampling activities will be documented in a logbook and photographically using EPA Environmental Response Team (ERT) SOP #2002 as guidance.

4.2.1 Groundwater Sampling

Groundwater samples will be collected from one existing, on-site monitoring well (Figure 1). If the monitoring well is not functional, a sample will not be collected. Water quality parameters of pH, temperature, conductivity, dissolved oxygen and turbidity will be collected and recorded into the site-specific logbook. A sample will be collected after consistent readings.

The groundwater well sampling will be conducted using low-flow techniques in accordance with SOPs; specifically, the EPA ERT SOP # 2007 Groundwater Sampling (Appendix B).

The samples will be shipped to the Houston EPA laboratory for TCL constituents. Target compounds and reporting limits are from the current CLP low concentration statement of work (Table 1 and 2).

4.2.2 Sediment Sampling

Sediment samples will be collected from seven locations in the Mermentau River (background and downstream locations). Sediment samples from the Mermentau River will be collected using a VibraCore retrieval system collecting a two foot core from the sediment floor of the river. Cores will be visually observed for any staining. Debris in the top portion of the core will not be collected to eliminate biological and organic materials. Intervals of the core collected as sample will be documented and the sample will be transferred to sample containers.

Three sediment grab samples will be collected from the wetlands located south of the property with hand augers or PCV pipe creating a suction to lift sediment as a core. Samples will be transferred to containers and processed for shipment to the laboratory.

Two sediment samples will be collected from Source 8. Sediment samples will be collected using a VibraCore retrieval system collecting a two foot core from the sediment floor of the river. Debris in the top portion of the core will not be collected to eliminate biological and organic materials. Intervals of the core collected as sample will be documented and the sample will be transferred to sample containers.

All samples will be grab samples. Target compounds, and reporting limits are from the current CLP low concentration statement of work (Table 1 and 2).

The samples collected will be sequentially labeled with the site identifier and a sequential sample number, e.g., SBA001 = SBA Shipyards sample 001. The sediment sampling will be conducted in accordance with SOPs; specifically, the SOP #2016 Sediment Sampling (Appendix A).

The sediment samples will be shipped to the Houston EPA laboratory for TCL analyses.

4.2.3 Barge Sampling

Up to two waste samples will be collected from the buried barge. The waste sample will be grab samples collected directly into the sample container.

The samples will be shipped to the Houston EPA laboratory for TCL constituents and ALS Laboratory for dioxin/furan analysis.

4.3 Analytical Parameters

Water and sediment samples will undergo chemical analysis by the Houston EPA laboratory for TCL analyses using EPA or CLP SOW methods. The requested turn-around time for analytical results and corresponding Staged Electronic Data Deliverable (SEDD) will be thirty-five (35) calendar days. The analytical methods are specified in Table 2.

Waste samples will be analyzed by a subcontracted laboratory, ALS Laboratory for dioxin/fruans. The requested turn-around time is thirty (30) calendar days. The analytical method is specified in Table 2.

4.4 Sample Preservation

Sample preservation will be conducted utilizing procedures in the *Contract Laboratory Program Guidance for Field Samplers, August 2004* or EPA ERT SOP # 2003 Sample Storage, Preservation Handling. All of the collected samples will be stored at less than 4º C.

4.5 Sample Packaging and Shipping

No changes are incorporated into this section as part of the Addendum. Refer to *SBA Shipyard Quality Assurance Sampling Plan, May 30, 2013*.

4.6 Control of Contaminated Materials

No changes are incorporated into this section as part of the addendum. Refer to *SBA Shipyard quality assurance sampling plan, May 30, 2013.*

5.0 QUALITY CONTROL

No changes are incorporated into this section as part of the Addendum. Refer to *SBA Shipyard Quality Assurance Sampling Plan, May 30, 2013.*

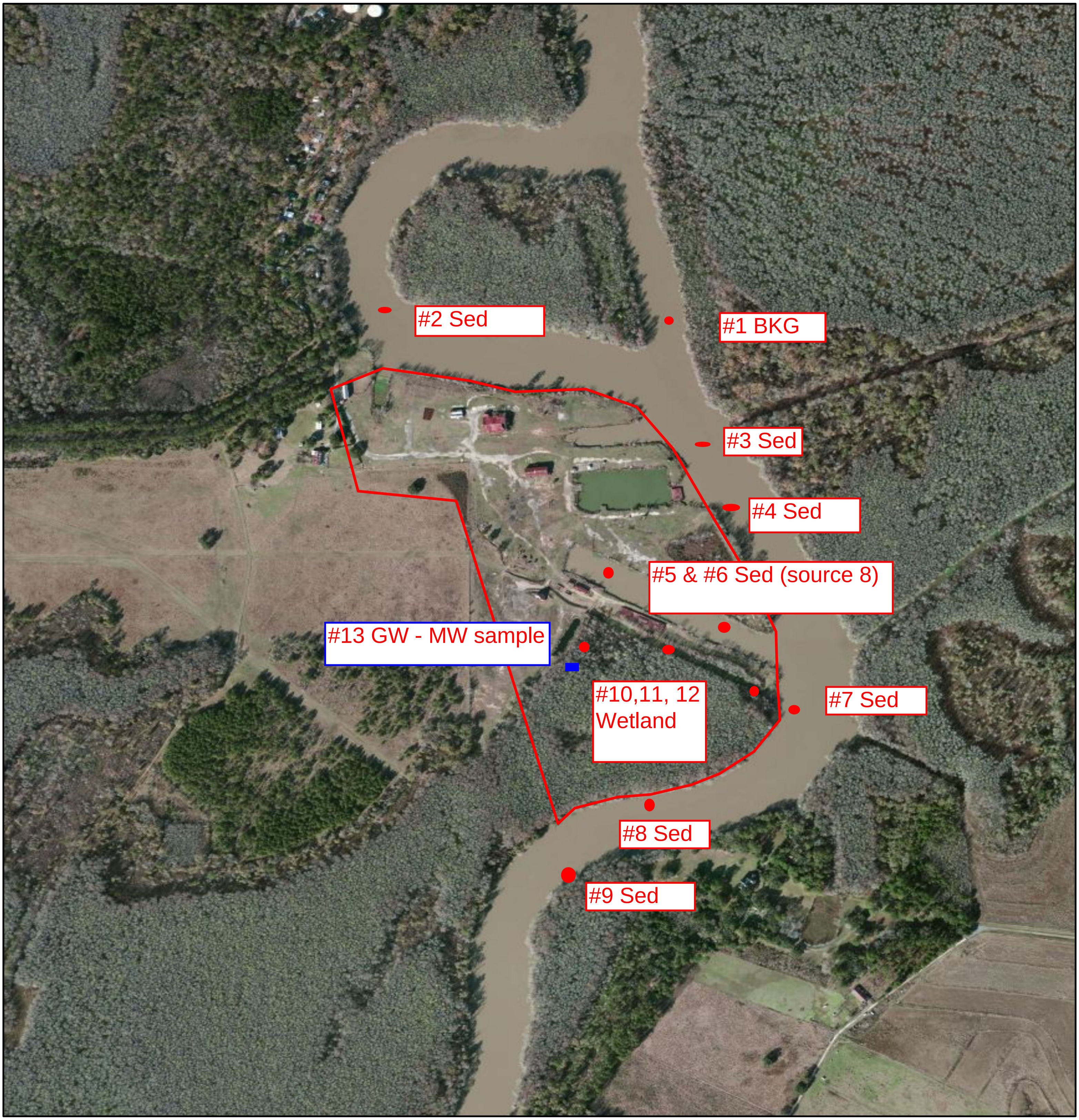
6.0 RECONCILIATION WITH DATA QUALITY OBJECTIVES

No changes are incorporated into this section as part of the Addendum. Refer to *SBA Shipyard Quality Assurance Sampling Plan, May 30, 2013.*

7.0 DELIVERABLES AND PROJECT ORGANIZATION

No changes are incorporated into this section as part of the Addendum. Refer to *SBA Shipyard Quality Assurance Sampling Plan, May 30, 2013.*

FIGURE



Map of Louisiana

Legend

SBA Shipyard, Inc.

N
W E
S

1:10,000

0 450 900 1,800 Feet

US EPA Region 6
START-3

Figure 1:ESI Proposed Sample Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

07 925

May 2013

TABLE 1
Sample Collection Summary

Sample Matrix	Sample Location	Analyses	Composites or Grab Samples	Trip Blank Samples	MS/MSD	Field Duplicates	Rinsates
On-site and off-site Sediment	12 locations	TCL	Grab	None	1 per 20 samples	1 per 10 samples	NA
Groundwater	1 location	TCL	Grab	None	1 per 20 samples	1 per 10 samples	NA
Waste material	1 location	TCL, Dioxin	Grab	None	None	None	NA

KEY
MS/MSD – Matrix Spike/Matrix Spike Duplicate
NA – Not applicable
TCL – Target Compound List

TABLE 2
SAMPLING and ANALYSIS SUMMARY

Matrix	Analytical Parameter	Analytical Method	Containers (Number, Size, and Type)	Preservation Requirements	No. of Samples	No. Field Duplicates	No. MS/MSD Pairs	No. of Equipment Rinsate Samples	No. of Trip Blanks	Total Number of Samples to Lab*
Sediments	TCL	EPA Regional Laboratory or current CLP SOW	1, 8 oz. glass jar	Cool to 4°C	12	2	1	0	0	14
Groundwater	TCL	EPA Regional Laboratory or current CLP SOW	2, 1-liter amber glass bottle	Cool to 4°C	1	1	1	0	0	3
Waste material	TCL	EPA Regional Laboratory or current CLP SOW	1, 8 oz glass jar	Cool to 4°C	2	0	0	0	0	2
Waste material	Dioxin/furan	Method 8290	1, 8 oz glass jar	Cool to 4°C	2	0	0	0	0	2

Notes:
*Total number of samples to the laboratory does not include MS/MSD samples. However, please note that MS/MSD or spike/duplicate analysis may require additional sample volume.

KEY
°C - Degrees Celsius
CLP – Contract Laboratory Program
MS/MSD – Matrix Spike/Matrix Spike Duplicate
N/A – Not applicable
SOW – Statement of Work
TCL – Target Compound List

TABLE 3
PROPOSED SAMPLE LOCATIONS

Sample #	Media	Description
SBA-ESI-001	Sediment	Background sample
SBA-ESI-002	Sediment	Background sample
SBA-ESI-003	Sediment	From River at location likely to receive sediment from slip
SBA-ESI-004	Sediment	From River at location likely to receive sediment build up from dry dock (Source 9)
SBA-ESI-005	Sediment	Sediment sample from Source 8
SBA-ESI-006	Sediment	Sediment sample from Source 8
SBA-ESI-007	Sediment	From river at location likely to receive sediment build up from Source 8
SBA-ESI-008	Sediment	Along wetland boundary in River in area subject to sediment build up
SBA-ESI-009	Sediment	Down gradient in river along wetland boundary
SBA-ESI-010	Sediment	From Wetland near Source 6
SBA-ESI-011	Sediment	From Wetland near Source 6
SBA-ESI -012	Sediment	From Wetland near Source 6
SBA-ESI-013	Groundwater	Monitoring Well located in Wetland
SBA-ESI-014	Waste	Barge Sample
SBA-ESI-015	Waste	Barge Sample

Table 4 DATA QUALITY OBJECTIVES SBA Shipyards ESI	
STEP 1. STATE THE PROBLEM	
Determine if CERCLA hazardous substances are present in the ground waters, sediments at the site and if they are migrating from the site to surface waters and ground waters.	
STEP 2. IDENTIFY THE DECISION	
If CERCLA hazardous substances are present in the ground water, sediments the site is eligible for HRS consideration. If CERCLA hazardous substances are present in the sediments, potential or actual releases to the HRS surface water pathway can be documented.	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	If CERCLA hazardous substances are found in the ground water, sediments at the site, HRS evaluation of the site can be conducted. If CERCLA hazardous substances are found in the sediment of the Mermentau River and the wetlands south of the property, an observed release is documented; if not a potential release will be used for HRS evaluation.
STEP 3. IDENTIFY INPUTS TO THE DECISION	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	Ground water from the site; sediment samples from the site, background and drainage from the site. HRS Rule
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	HRS Rule is published. All sample results are environmental measurements
BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.	HRS rule, background concentrations, sample CRQLs
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	Sediment samples will be collected using Vibra-Core and if necessary Ponar Dredge, and ground water samples will be collected using low flow pumps. Samples will be analyzed for TCL EPA methods utilized by the Houston EPA Lab or current CLP SOWs.
STEP 4. DEFINE THE BOUNDARIES OF THE STUDY	
DEFINE THE DOMAIN OR GEOGRAPHICAL AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The 98 acres that comprise the facility. The drainage pathways into the wetlands and its flow on the southeast side of the site.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	The primary population of interest is the users of groundwater within the 4 mile TDL and the surface water and ecological receptors within the 15 mile TDL for the surface water pathway. The secondary population of interest is residents living within the 4 mile target distance limit for the air exposure pathway.
DEFINE THE SCALE OF THE DECISION MAKING.	Bounds of the samples collected.
DETERMINE THE TIMEFRAME TO WHICH THE DATA APPLY.	Results from this and subsequent potential investigations.
DETERMINE WHEN TO COLLECT THE DATA.	Sample collection will be conducted in September 2014.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	START/EPA must obtain access agreements from property owners before sampling.
STEP 5. DEVELOP A DECISION RULE	
SPECIFY THE PARAMETER THAT	SVOCs, within the sediments of the river and

Table 4 DATA QUALITY OBJECTIVES SBA Shipyards ESI	
CHARACTERIZES THE POPULATION OF INTEREST.	site.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	Contaminants present in the samples of sediment or water at the site. Concentration greater than SQL if not detected in the background samples, greater than 3 times the background concentration if detected in background samples.
DEVELOP A DECISION RULE.	If CERCLA hazardous substances are present at concentrations greater than their SQLs in the water, sediment samples collected at the site, sources will be evaluated using the HRS model. If the concentration of a hazardous substance at the site is greater than its SQL in the off-site sediments samples and the substance is not detected in background samples, a release to that pathway will be evaluated, or if a hazardous substance at the site is detected in the background sample and its concentration in the off-site sediment samples is greater than its SQL and 3 times greater that the concentration in the background sample, a release to that pathway will be evaluated, else no release can be documented.
STEP 6. SPECIFY THE LIMITS ON DECISION ERRORS	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	Concentrations may range from less than SQL/reporting limit to greater than 10,000 ppm.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	1. Deciding that the concentrations are below HRS criteria when they are actually greater. 2. Deciding that the concentrations are above HRS criteria when they are actually lower.
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	1. Concentrations are greater than HRS criteria 2. Concentration are less than HRS criteria
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS (H_o), AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS (H_a).	The more sever decision error is to decide that the concentrations are below HRS criteria when they are actually above criteria, Ho – Null hypothesis. Alternate hypothesis – H1 – concentrations are above HRS criteria when they are actually below criteria.
ASSIGN THE TERMS “FALSE POSITIVE” AND “FALSE NEGATIVE” TO THE PROPER DECISION ERRORS.	Ho = false negative H1 = false positive
ASSIGN THE PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURENCES OF DECISION ERRORS.	Probability values not assigned at this time.
STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs.	
DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN. The QASP that these DQOs are attached to reflect the sample and analysis design to meet these objectives.	

APPENDIX A

EPA ERT SOP No. 2016 – Sediment Sampling

SEDIMENT SAMPLING

SOP#: 2016
DATE: 11/17/94
REV. #: 0.0

1.0 SCOPE AND APPLICATION

This standard operating procedure (SOP) is applicable to the collection of representative sediment samples. Analysis of sediment may be biological, chemical, or physical in nature and may be used to determine the following:

- toxicity;
- biological availability and effects of contaminants;
- benthic biota;
- extent and magnitude of contamination;
- contaminant migration pathways and source;
- fate of contaminants;
- grain size distribution.

The methodologies discussed in this SOP are applicable to the sampling of sediment in both flowing and standing water. They are generic in nature and may be modified in whole or part to meet the handling and analytical requirements of the contaminants of concern, as well as the constraints presented by site conditions and equipment limitations. However, if modifications occur, they should be documented in a site or personal logbook and discussed in reports summarizing field activities and analytical results.

For the purposes of this procedure, sediments are those mineral and organic materials situated beneath an aqueous layer. The aqueous layer may be either static, as in lakes, ponds, and impoundments; or flowing, as in rivers and streams.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

2.0 METHOD SUMMARY

Sediment samples may be collected using a variety of methods and equipment, depending on the depth of the aqueous layer, the portion of the sediment profile required (surface vs. subsurface), the type of sample required (disturbed vs. undisturbed), contaminants present, and sediment type.

Sediment is collected from beneath an aqueous layer either directly, using a hand held device such as a shovel, trowel, or auger; or indirectly, using a remotely activated device such as an Ekman or Ponar dredge. Following collection, sediment is transferred from the sampling device to a sample container of appropriate size and construction for the analyses requested. If composite sampling techniques are employed, multiple grabs are placed into a container constructed of inert material, homogenized, and transferred to sample containers appropriate for the analyses requested. The homogenization procedure should not be used if sample analysis includes volatile organics; in this case, sediment, or multiple grabs of sediment, should be transferred directly from the sample collection device or homogenization container to the sample container.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING AND STORAGE

1. Chemical preservation of solids is generally not recommended. Cooling to 4°C is usually the best approach, supplemented by the appropriate holding time for the analyses requested.

2. Wide mouth glass containers with Teflon lined caps are utilized for sediment samples. The sample volume is a function of the analytical requirements and will be specified in the Work Plan.

3. If analysis of sediment from a discrete depth or location is desired, sediment is transferred directly from the sampling device to a labeled sample container(s) of appropriate size and construction for the analyses

requested. Transfer is accomplished with a stainless steel or plastic lab spoon or equivalent.

4. If composite sampling techniques or multiple grabs are employed, equal portions of sediment from each location are deposited into a stainless steel, plastic, or other appropriate composition (e.g., Teflon) containers. The sediment is homogenized thoroughly to obtain a composite representative of the area sampled. The composite sediment sample is transferred to a labeled container(s) of appropriate size and construction for the analyses requested. Transfer of sediment is accomplished with a stainless steel or plastic lab spoon or equivalent. Samples for volatile organic analysis must be transferred directly from the sample collection device or pooled from multiple areas in the homogenization container prior to mixing. This is done to minimize loss of contaminant due to volatilization during homogenization.

5. All sampling devices should be decontaminated, then wrapped in aluminum foil. The sampling device should remain in this wrapping until it is needed. Each sampling device should be used for only one sample. Disposable sampling devices for sediment are generally impractical due to cost and the large number of sediment samples which may be required. Sampling devices should be cleaned in the field using the decontamination procedure described in the Sampling Equipment Decontamination SOP.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

Substrate particle size and organic matter content are a direct consequence of the flow characteristics of a waterbody. Contaminants are more likely to be concentrated in sediments typified by fine particle size and a high organic matter content. This type of sediment is most likely to be collected from depositional zones. In contrast, coarse sediments with low organic matter content do not typically concentrate pollutants and are generally found in erosional zones. The selection of a sampling location can, therefore, greatly influence the analytical results and should be justified and specified in the Work Plan.

5.0 EQUIPMENT/APPARATUS

Equipment needed for collection of sediment samples may include:

- Maps/plot plan
- Safety equipment
- Compass
- Tape measure
- Survey stakes, flags, or buoys and anchors
- Camera and film
- Stainless steel, plastic, or other appropriate composition bucket
- 4-oz., 8-oz., and one-quart wide mouth jars w/Teflon lined lids
- Ziploc plastic bags
- Logbook
- Sample jar labels
- Chain of Custody records, field data sheets
- Cooler(s)
- Ice
- Decontamination supplies/equipment
- Spade or shovel
- Spatula
- Scoop
- Trowel
- Bucket auger
- Tube auger
- Extension rods
- "T" handle
- Sediment coring device (tube, drive head, eggshell check value, nosecone, acetate tube, extension rods, "T" handle)
- Ponar dredge
- Ekman dredge
- Nylon rope or steel cable
- Messenger device

6.0 REAGENTS

Reagents are not used for preservation of sediment samples. Decontamination solutions are specified in the Sampling Equipment Decontamination SOP.

7.0 PROCEDURES

7.1 Preparation

1. Determine the objective(s) and extent of the sampling effort. The sampling methods to be employed, and the types and amounts of equipment and supplies required will be a function of site characteristics and objectives of the study.

2. Obtain the necessary sampling and monitoring equipment.

3. Prepare schedules, and coordinate with staff, client, and regulatory agencies, if appropriate.

4. Decontaminate or preclean equipment, and ensure that it is in working order.

5. Perform a general site survey prior to site entry in accordance with the site specific Health and Safety Plan.

6. Use stakes, flagging, or buoys to identify and mark all sampling locations. Specific site factors including flow regime, basin morphometry, sediment characteristics, depth of overlying aqueous layer, contaminant source, and extent and nature of contamination should be considered when selecting sample locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

7.2 Sample Collection

Selection of a sampling device is most often contingent upon: (1) the depth of water at the sampling location, and (2) the physical characteristics of the sediment to be sampled. The following procedures may be utilized:

7.2.1 Sampling Surface Sediment with a Trowel or Scoop from Beneath a Shallow Aqueous Layer

For the purpose of this method, surface sediment is considered to range from 0 to six inches in depth and a shallow aqueous layer is considered to range from 0 to 12 inches in depth. Collection of surface sediment from beneath a shallow aqueous layer can be accomplished with tools such as spades, shovels, trowels, and scoops. Although this method can be used to collect both unconsolidated/consolidated sediment, it is limited somewhat by the depth and movement of the aqueous layer. Deep and rapidly flowing water render this method less accurate than others discussed below. However, representative samples can be collected with this procedure in shallow sluggish water provided care is demonstrated by the sample team member. A stainless steel or plastic sampling implement will suffice in most applications. Care should be exercised to avoid the use of devices plated with chrome or other materials; plating is particularly common with garden trowels.

The following procedure will be used to collect sediment with a scoop, shovel, or trowel:

1. Using a decontaminated sampling implement, remove the desired thickness and volume of sediment from the sampling area.

2. Transfer the sample into an appropriate sample or homogenization container. Ensure that non-dedicated containers have been adequately decontaminated.

3. Surface water should be decanted from the sample or homogenization container prior to sealing or transfer; care should be taken to retain the fine sediment fraction during this procedure.

7.2.2 Sampling Surface Sediment with a Bucket Auger or Tube Auger from Beneath a Shallow Aqueous Layer

For the purpose of this method, surface sediment is considered to range from 0 to six inches in depth and a shallow aqueous layer is considered to range from 0 to 24 inches in depth. Collection of surface sediment from beneath a shallow aqueous layer can be accomplished with a system consisting of bucket auger or tube auger, a series of extensions, and a "T" handle (Figure 1, Appendix A). The use of additional extensions in conjunction with a bucket auger can increase the depth of water from which sediment can be collected from 24 inches to 10 feet or more. However, sample handling and manipulation increases in difficulty with increasing depth of water. The bucket auger or tube auger is driven into the sediment and used to extract a core. The various depths represented by the core are homogenized or a subsample of the core is taken from the appropriate depth.

The following procedure will be used to collect sediment samples with a bucket auger or tube auger:

1. An acetate core may be inserted into the bucket auger or tube auger prior to sampling if characteristics of the sediments or waterbody warrant. By using this technique, an intact core can be extracted.

2. Attach the auger head to the required length of extensions, then attach the "T" handle to the upper extension.

3. Clear the area to be sampled of any surface debris.

4. Insert the bucket auger or tube auger into the sediment at a 0° to 20° angle from vertical. This orientation minimizes spillage of the sample from the sampler upon extraction from the sediment and water.

5. Rotate the auger to cut a core of sediment.

6. Slowly withdraw the auger; if using a tube auger, make sure that the slot is facing upward.

7. Transfer the sample or a specified aliquot of sample into an appropriate sample or homogenization container. Ensure that non-dedicated containers have been adequately decontaminated.

7.2.3 Sampling Deep Sediment with a Bucket Auger or Tube Auger from Beneath a Shallow Aqueous Layer

For the purpose of this method, deep sediment is considered to range from six to greater than 18 inches in depth and a shallow aqueous layer is considered to range from 0 to 24 inches. Collection of deep sediment from beneath a shallow aqueous layer can be accomplished with a system consisting of a bucket auger, a tube auger, a series of extensions and a "T" handle. The use of additional extensions can increase the depth of water from which sediment can be collected from 24 inches to five feet or more. However, water clarity must be high enough to permit the sampler to directly observe the sampling operation. In addition, sample handling and manipulation increases in difficulty with increasing depth of water. The bucket auger is used to bore a hole to the upper range of the desired sampling depth and then withdrawn. The tube auger is then lowered down the borehole, and driven into the sediment to the lower range of the desired sampling depth. The tube is then withdrawn and the sample recovered from the tube. This method can be used to collect firmly consolidated sediments, but is somewhat limited by the depth of the aqueous layer, and the integrity of the initial borehole.

The following procedure will be used to collect deep sediment samples with a bucket auger and a tube auger:

1. Attach the bucket auger bit to the required lengths of extensions, then attach the "T" handle to the upper extension.

2. Clear the area to be sampled of any surface debris.

3. Begin augering, periodically removing any accumulated sediment (i.e., cuttings) from the auger bucket. Cuttings should be disposed of far enough from the sampling area to minimize cross contamination of various depths.

4. After reaching the upper range of the desired depth, slowly and carefully remove bucket auger from the boring.

5. Attach the tube auger bit to the required lengths of extensions, then attach the "T" handle to the upper extension.

6. Carefully lower tube auger down borehole using care to avoid making contact with the borehole sides and, thus, cross contaminating the sample. Gradually force tube auger into sediment to the lower range of the desired sampling depth. Hammering of the tube auger to facilitate coring should be avoided as the vibrations may cause the boring walls

to collapse.

7. Remove tube auger from the borehole, again taking care to avoid making contact with the borehole sides and, thus, cross contaminating the sample.

8. Discard the top of core (approximately 1 inch); as this represents material collected by the tube auger before penetration to the layer of concern.

9. Transfer sample into an appropriate sample or homogenization container. Ensure that non-dedicated containers have been adequately decontaminated.

7.2.4 Sampling Surface Sediment with an Ekman or Ponar Dredge from Beneath a Shallow or Deep Aqueous Layer

For the purpose of this method, surface sediment is considered to range from 0 to six inches in depth. Collection of surface sediment can be accomplished with a system consisting of a remotely activated device (dredge) and a deployment system. This technique consists of lowering a sampling device (dredge) to the surface of the sediment by use of a rope, cable, or extended handle. The mechanism is activated, and the device entraps sediment in spring loaded or lever operated jaws.

An Ekman dredge is a lightweight sediment sampling device with spring activated jaws. It is used to collect moderately consolidated, fine textured sediment. The following procedure will be used for collecting sediment with an Ekman dredge (Figure 2, Appendix A):

1. Attach a sturdy nylon rope or stainless steel cable through the hole on the top of the bracket, or secure the extension handle to the bracket with machine bolts.

2. Attach springs to both sides of the jaws. Fix the jaws so that they are in open position by placing trip cables over the release studs. Ensure that the hinged doors on the dredge top are free to open.

3. Lower the sampler to a point 4 to 6 inches above the sediment surface.

4. Drop the sampler to the sediment.

5. Trigger the jaw release mechanism by lowering a messenger down the line, or by depressing the button on the upper end of the extension handle.

6. Raise the sampler and slowly decant any free liquid through the top of the sampler. Care should be taken to retain the fine sediment fraction during this procedure.

7. Open the dredge jaws and transfer the sample into a stainless steel, plastic or other appropriate composition (e.g., Teflon) container. Ensure that non-dedicated containers have been adequately decontaminated. If necessary, continue to collect additional sediment grabs until sufficient material has been secured to fulfill analytical requirements. Thoroughly homogenize and then transfer sediment to sample containers appropriate for the analyses requested. Samples for volatile organic analysis must be collected directly from the bucket before homogenization to minimize volatilization of contaminants.

A Ponar dredge is a heavyweight sediment sampling device with weighted jaws that are lever or spring activated. It is used to collect consolidated fine to coarse textured sediment. The following procedure will be used for collecting sediment with a Ponar dredge (Figure 3, Appendix A):

1. Attach a sturdy nylon rope or steel cable to the ring provided on top of the dredge.

2. Arrange the Ponar dredge with the jaws in the open position, setting the trip bar so the sampler remains open when lifted from the top. If the dredge is so equipped, place the spring loaded pin into the aligned holes in the trip bar.

3. Slowly lower the sampler to a point approximately two inches above the sediment.

4. Drop the sampler to the sediment. Slack on

the line will release the trip bar or spring loaded pin; pull up sharply on the line closing the dredge.

5. Raise the dredge to the surface and slowly decant any free liquid through the screens on top of the dredge. Care should be taken to retain the fine sediment fraction during this operation.

6. Open the dredge and transfer the sediment to a stainless steel, plastic or other appropriate composition (e.g., Teflon) container. Ensure that non-dedicated containers have been adequately decontaminated. If necessary, continue to collect additional sediment until sufficient material has been secured to fulfill analytical requirements. Thoroughly homogenized and then transfer sediment to sample containers appropriate for the analyses requested. Samples for volatile organic analysis must be collected directly from the bucket before homogenization to minimize volatilization of contaminants.

7.2.5 Sampling Subsurface Sediment with a Coring Device from Beneath a Shallow Aqueous Layer

For purposes of this method, subsurface sediment is considered to range from 6 to 24 inches in depth and a shallow aqueous layer is considered to range from 0 to 24 inches in depth. Collection of subsurface sediment from beneath a shallow aqueous layer can be accomplished with a system consisting of a tube sampler, acetate tube, eggshell check valve, nosecone, extensions, and "T" handle, or drivehead. The use of additional extensions can increase the depth of water from which sediment can be collected from 24 inches to 10 feet or more. This sampler may be used with either a drive hammer for firm sediment, or a "T" handle for soft sediment. However, sample handling and manipulation increases in difficulty with increasing depth of water.

The following procedure describes the use of a sample coring device (Figure 4, Appendix A) used to collect subsurface sediments.

1. Assemble the coring device by inserting the acetate core into the sampling tube.

2. Insert the "egg shell" check valve into the lower end of the sampling tube with the convex surface positioned inside the acetate core.

3. Screw the nosecone onto the lower end of the sampling tube, securing the acetate tube and eggshell check valve.

4. Screw the handle onto the upper end of the sampling tube and add extension rods as needed.

5. Place the sampler in a perpendicular position on the sediment to be sampled.

6. If the "T" handle is used, place downward pressure on the device until the desired depth is reached. After the desired depth is reached, rotate the sampler to shear off the core at the bottom. Slowly withdraw the sampler from the sediment and proceed to Step 15.

7. If the drive hammer is selected, insert the tapered handle (drive head) of the drive hammer through the drive head.

8. Drive the sampler into the sediment to the desired depth.

9. Record the length of the tube that penetrated the sample material, and the number of blows required to obtain this depth.

10. Remove the drive hammer and fit the keyhole-like opening on the flat side of the hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.

11. Rotate the sampler to shear off the core at the bottom.

12. Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head, and rotate about 90^{o}.

13. Slowly withdraw the sampler from the sediment. If the drivehead was used, pull the hammer upwards and dislodge the sampler from the sediment.

14. Carefully remove the coring device from the water.

15. Unscrew the nosecone and remove the eggshell check valve.

16. Slide the acetate core out of the sampler tube. Decant surface water, using care to retain the fine sediment fraction. If head space is present in the upper end, a hacksaw may be used to shear the acetate tube off at the sediment surface. The acetate core may then be capped at both ends. Indicate on the acetate tube the appropriate orientation of the sediment core using a waterproof marker. The sample may be used in this fashion, or the contents transferred to a sample or homogenization container.

17. Open the acetate tube and transfer the sediment to a stainless steel, plastic or other appropriate composition (e.g., Teflon) container. Ensure that non-dedicated containers have been adequately decontaminated. If necessary, continue to collect additional sediment until sufficient material has been secured to fulfill analytical requirements. Thoroughly homogenize and then transfer sediment to sample containers appropriate for the analyses requested. Samples for volatile organic analysis must be collected directly from the bucket before homogenization to minimize volatilization of contaminants.

8.0 CALCULATIONS

This section is not applicable to this SOP.

9.0 QUALITY ASSURANCE/ QUALITY CONTROL

There are no specific quality assurance (QA) activities which apply to the implementation of these procedures. However, the following QA procedures apply:

1. All data must be documented on field data sheets or within site logbooks.

2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

10.0 DATA VALIDATION

This section is not applicable to this SOP.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA/OSHA and Corporate health and safety procedures.

More specifically, when sampling sediment from waterbodies, physical hazards must be identified and adequate precautions must be taken to ensure the safety of the sampling team. The team member collecting the sample should not get too close to the edge of the waterbody, where bank failure may cause loss of balance. To prevent this, the person performing the sampling should be on a lifeline, and be wearing adequate protective equipment. If sampling from a vessel is determined to be necessary, appropriate protective measures must be implemented.

12.0 REFERENCES

Mason, B.J., Preparation of Soil Sampling Protocol: Technique and Strategies. 1983 EPA-600/4-83-020.

Barth, D.S. and B.J. Mason, Soil Sampling Quality Assurance User's Guide. 1984 EPA-600/4-84-043.

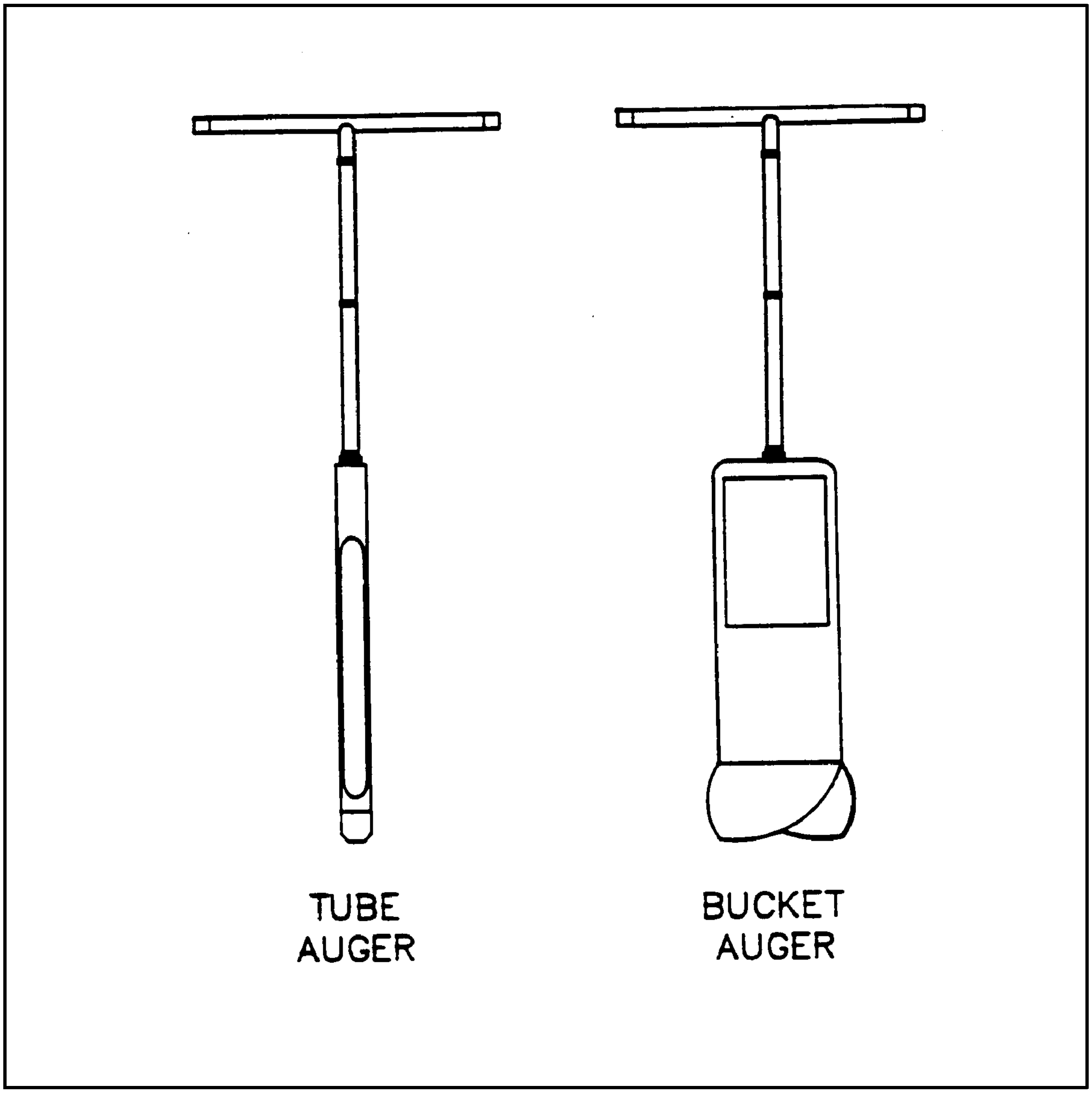
U.S. EPA. Characterization of Hazardous Waste Sites - A Methods Manual: Volume II. Available Sampling Methods, Second Edition. 1984 EPA-600/4-84-076.

de Vera, E.R., B.P. Simmons, R.D. Stephen, and D.L. Storm. Samplers and Sampling Procedures for Hazardous Waste Streams. 1980 EPA-600/2-80-018.

APPENDIX A

Figures

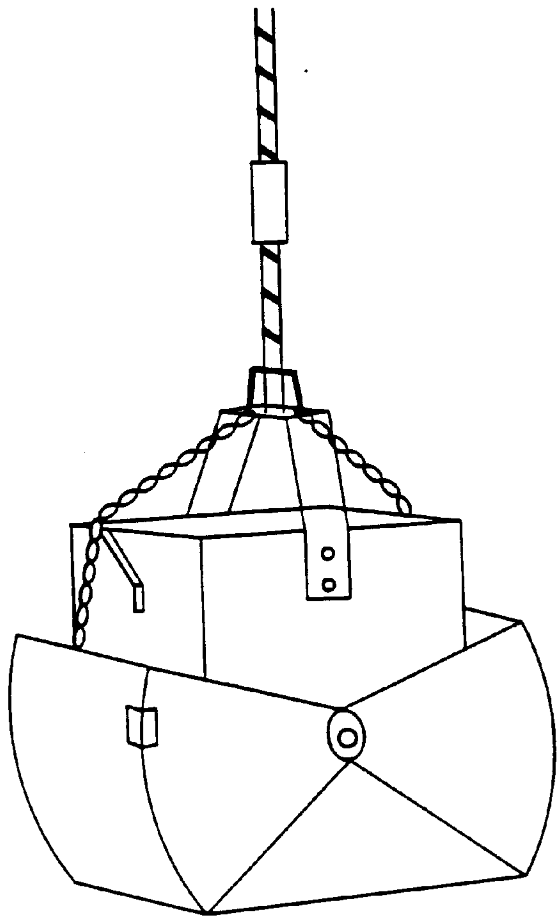
FIGURE 1. Sampling Auger



APPENDIX A (Cont'd)

Figures

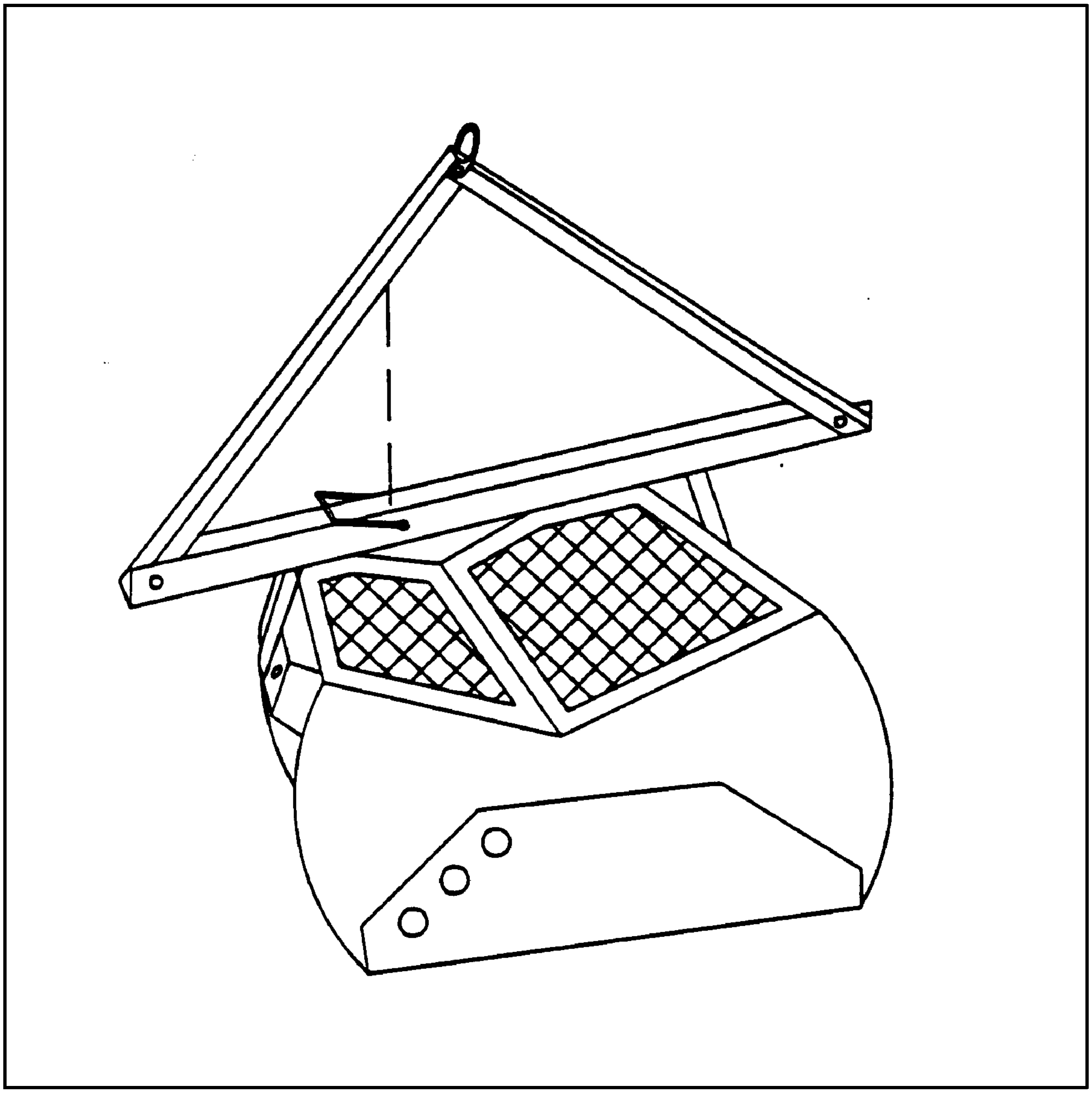
FIGURE 2. Ekman Dredge



APPENDIX A (Cont'd)

Figures

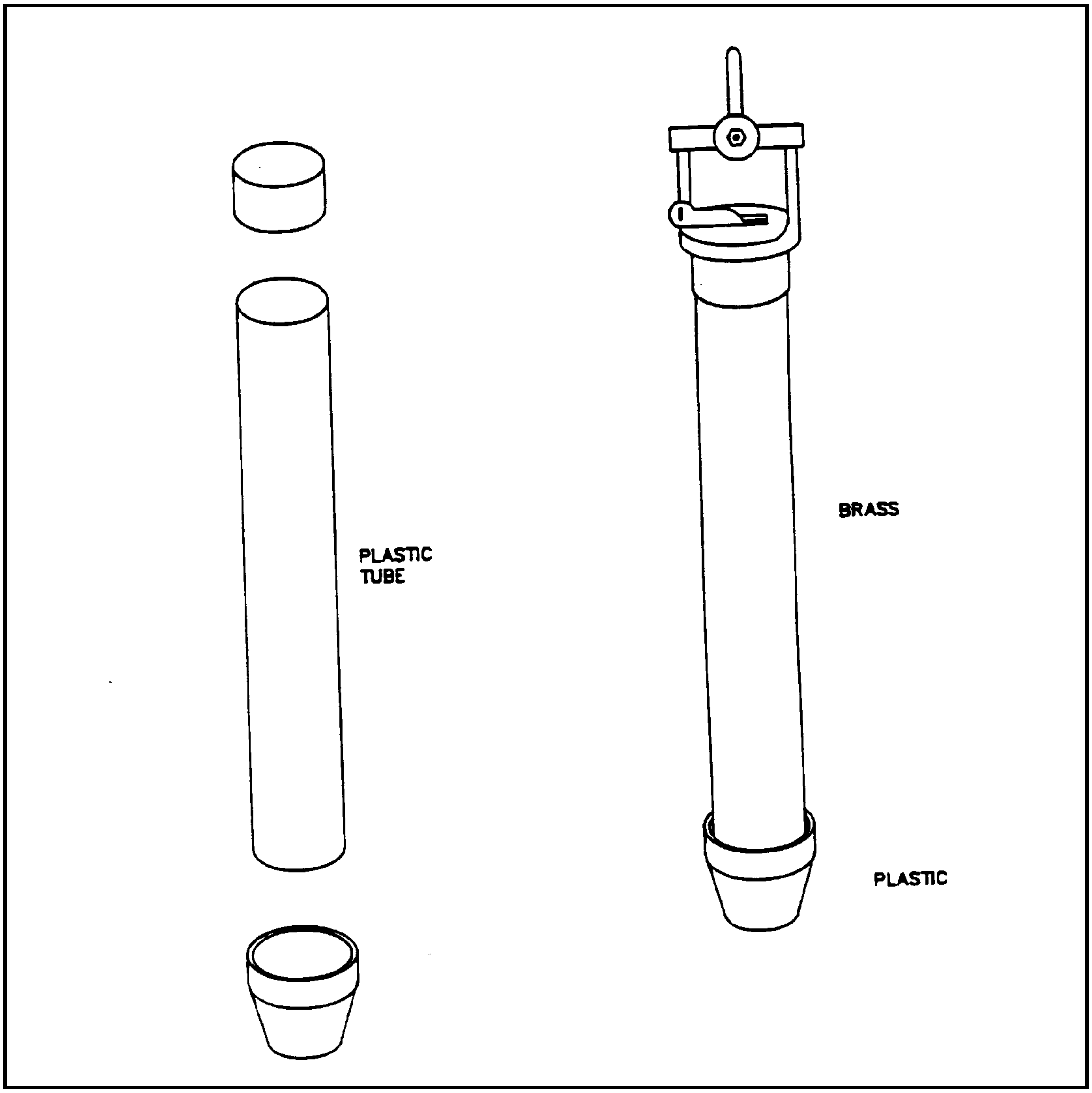
FIGURE 3. Ponar Dredge



APPENDIX A (Cont'd)

Figures

FIGURE 4. Sample Coring Device



APPENDIX B

EPA ERT SOP No. 2007 – Groundwater Well Sampling

Response Engineering and Analytical Contract

STANDARD OPERATING PROCEDURES

GROUNDWATER WELL SAMPLING

CONTENTS

CONTENTS (cont'd)

* These sections affected by Revision 0.0.

SUPERSEDES: SOP #2007; Revision: 0.0; 1/26/95; U.S. EPA Contract 68-C4-0022.

1.0 SCOPE AND APPLICATION

This standard operating procedure (SOP) provides general information on sampling groundwater wells and ensures that the sample is representative of the particular groundwater zone being sampled. The growing concern over the past several years with respect to low levels of volatile organic compounds (VOCs) in water supplies has led to the development of highly sophisticated analytical methods that can provide detection limits at part per trillion levels. While the laboratory methods are extremely sensitive, well controlled and quality assured, they cannot compensate for a poorly collected sample. The collection of a sample should be as sensitive, highly developed and quality assured as the analytical procedures.

The procedures are designed for sampling the most common types of groundwater contaminants (e.g., volatile and semivolatile organic compounds, pesticides, herbicides, polychlorinated biphenyls (PCBs), metals, and biological parameters).

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site conditions, or equipment limitations and limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute United States Environmental Protection Agency (U.S. EPA) endorsement or recommendation for use.

2.0 METHOD SUMMARY

In order to obtain a representative groundwater sample for chemical analysis (es), it is important to remove stagnant water from the well casing and the water immediately adjacent to the well before collection of the sample. This may be achieved with one of a number of sampling devices. The most common of these devices are the bailer, submersible pump, non-contact gas bladder pump, inertia pump and suction pump. At a minimum, three well volumes should be purged, if possible. Equipment must be decontaminated prior to use and between wells. Once purging is completed and the proper sample containers have been prepared, sampling may proceed. Samples should be collected from the depth interval where contaminants are expected but need not be collected with the same device used for well purging. However, some sampling methods will affect sample integrity and care should be taken when choosing the sampling device. If possible, sampling should occur progressively from the least to the most contaminated well.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

The sample analysis determines the type of bottle, preservative, holding time, and filtering requirements. Samples should be collected directly from the sampling device into appropriate sample containers. Check that a Teflon liner is present in the cap of the sample container, if required. Attach a sample identification label. Complete a field data sheet, a chain of custody form, and record all pertinent data in the site logbook.

Samples should be placed in a cooler and maintained at 4EC and ideally should be shipped within 24 hours of sample collection. If large numbers of samples are being collected, shipments may occur on a regular basis after consultation with the analytical laboratory. In all cases, samples should be shipped well before the holding time expires.

Due to the trace levels at which volatile organics are detectable, cross contamination and introduction of contaminants must be avoided. Treatment of the sample with sodium thiosulfate preservative is required only if there is residual chlorine in the water that could cause free radical chlorination and change the identity of the original contaminants. This preservative should not be used if there is no chlorine in the water. Quality assurance/quality control (QA/QC) samples are incorporated into the shipment package to provide a check against cross contamination. Samples for the analysis of volatiles, semivolatiles, pesticides, herbicides and PCBs do not normally require preservation. Groundwater samples for metal analyses should be adjusted with nitric acid to a pH of less than 2. Refer to REAC SOP# 2003, *Sample Storage, Preservation and Handling*.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

The primary goal of well sampling is to obtain a representative sample of the groundwater. Analysis can be compromised by: (1) taking an unrepresentative sample, or (2) by incorrect handling of the sample. To avoid introducing foreign contaminants into a sample, strict sampling procedures should be followed.

4.1 Well Purging

In a non-pumping well, there will be little or no vertical mixing of the water, and stratification will occur. The well water above the screened section will remain isolated and may lack the contaminants representative of the ground water. To avoid collecting unrepresentative water, all monitor wells should be purged of three to five volumes of water prior to sampling. When purging with a submersible pump, the pump intake may be set within the screened interval if evaluation of the well construction, pumping rate, and aquifer characteristics ensures that formation material will not be drawn into the well. Otherwise, the pump should be set just above the top of the screen. Bailers, peristalic pumps, and miniature submersible pumps can also be used for purging, depending on well depth, groundwater level, and well yield. During purging, the temperature, pH, turbidity, and specific conductivity of the groundwater should be monitored at regular intervals and recorded in the site field logbook. The frequency of monitoring will depend on the purge rate but measurements are generally collected every 5 to 15 minutes. Purging is generally considered complete when these parameters stabilize. Depending on the formation characteristics and the degree of previous development, turbidity may also be a problem. Purging may have to be continued until the turbidity reaches an acceptable level, generally less than 50 nephelometric turbidity units (NTUs).

4.2 Sampling Equipment

The tendency of organics to adsorb or desorb onto or out of many materials makes the selection of sampling materials critical for trace organics analyses. Construction materials for samplers and purging equipment (bladders, pump, bailers, tubing) should be limited to stainless steel, polytetrafluoroethylene (Teflon[R]), and glass in areas where concentrations are expected to be at or near the detection limit. The use of plastics, such as polyvinyl chloride (PVC) or polyethylene, should be avoided when analyzing for organics. However, PVC may be used for evacuation equipment as it will not normally come into contact with the sample. Rinsate blanks may be required to check the effectiveness of decontamination procedures when using non-dedicated equipment. In highly contaminated wells, disposable equipment (i.e., polypropylene bailers) may be appropriate to avoid cross-contamination.

4.3 Light Non-Aqueous Phase Liquids (LNAPL)

The presence of floating organic layers in a well may require reevaluation of the sampling plan. There is generally little point in sampling the groundwater directly beneath an organic layer and the presence of both phases complicates the sampling procedure. The organic phase is usually sampled by skimming the top of the liquid column in the well with a bailer or small pump, depending on the viscosity of the liquid.

5.0 EQUIPMENT/APPARATUS

5.1 Bailers

Advantages

- No power source needed
- Portable
- Inexpensive, so it can be dedicated and hung in a well, thereby reducing the chances of cross contamination
- Minimal outgassing of volatile organics while sample is in bailer
- Readily available
- Removes stagnant water first
- Rapid, simple method for removing small volumes of purge water

Disadvantages

- Time-consuming to flush a large well
- Transfer of sample may cause aeration
- The valve at the bottom of the bailer often leaks thus losing some of the sample

5.2 Submersible Pumps

Advantages

- Smaller diameter pumps are usually portable and can be transported from well to well

- C Relatively high pumping rates are possible
- C Generally very reliable and does not require priming

Disadvantages

- C Potential for effects on analysis of trace organics
- C Deep wells may require pumps that are heavy and cumbersome to use
- C Expensive
- C Power source needed
- C Sediment in water may clog intake screen or impellers
- C Must be decontaminated between wells

5.3 Non-Contact Gas Bladder Pumps

Advantages

- C Maintains integrity of sample
- C Easy to use
- C Can sample from discrete locations within the monitor well

Disadvantages

- C Difficulty in cleaning, although dedicated tubing and bladder may be used
- C Only useful to a depth of about 100 feet
- C Requires a supply of gas or an air compressor for operation, gas bottles or compressors are often difficult to obtain and are cumbersome
- C Relatively low pumping rates

5.4 Suction Pumps (including peristaltic pumps)

Advantages

- C Portable, inexpensive, and readily available
- C Operates from either 110 VAC or 12 VDC
- C Variable flow rate, easily controlled

Disadvantages

- C Restricted to wells where water levels are within 20 to 25 feet of the ground surface
- C Vacuum can cause loss of dissolved gasses and volatile organics
- C Some types must be primed and vacuum is often difficult to maintain during initial stages of pumping

- Generally suitable for only small diameter shallow wells; maximum flow rate of some types (e.g. peristalic pumps) limited to approximately one gallon per minute (gpm)

5.5 Inertia Pumps

Advantages

- Portable, inexpensive, and readily available
- Offers a rapid method for purging relatively shallow wells

Disadvantages

- Restricted to areas with water levels within 70 feet of the ground surface
- May be time consuming to purge wells with these manual pumps
- Labor intensive
- WaTerra pumps (for example) are only effective in 2-inch diameter wells

5.6 Field Equipment Checklist

5.6.1 General

- Water level indicator
  - electric sounder
  - steel tape
  - transducer
  - reflection sounder
  - airline
- Depth sounder
- Appropriate keys for well cap locks
- Steel brush
- HNU or OVA (whichever is most appropriate)
- Logbook (bound)
- Calculator
- Field data sheets and samples labels
- Chain of custody records and seals
- Sample containers
- Engineer's rule
- Sharp knife (locking blade)
- Tool box (to include at least: screwdrivers, pliers, hacksaw, hammer, flashlight, adjustable wrench)
- Leather work gloves
- Surgical gloves (for sampling)

- Appropriate Health & Safety gear
- Five-gallon pail
- Plastic sheeting
- Shipping containers
- Packing materials
- Bolt cutters
- Ziploc® plastic bags
- Containers for evacuation liquids
- Decontamination solutions
- Tap water
- Non phosphate soap
- Pails or tubs
- Aluminum foil
- Garden sprayer
- Preservatives
- Distilled or deionized water
- Fire extinguisher (if using a generator as a power source)
- In-line filters, 0.45 microns (µm)
- pH meter, temperature meter specific conductivity meter, turbidity meter
- Indelible markers
- Duct tape
- Paper towels
- First aid kit

5.6.2 Bailers

- Clean, decontaminated bailers of appropriate size and construction material
- Unused nylon line, enough to dedicate to each well
- Teflon® coated bailer wire
- Sharp knife
- Aluminum foil (to wrap clean bailers)
- Five gallon bucket

5.6.3 Submersible Pumps

- Pump(s)
- Generator (120, or 240 volts) or 12 volt power source, depending on pump
- Extension cords
- PVC coil tubing, diameter suitable for flow requirements
- Hose clamps
- Safety cable
- Tool box

- pipe wrenches
- wire strippers
- electrical tape
- heat shrink wrap or tubing
- hose connectors
- Teflon tape

C Winch, pulley or hoist for large submersible pumps (4-inch diameter or greater)
C Gasoline container, gasoline
C Flow meter and gate valve
C Plumbing components (nipples, reducers, plastic pipe connectors)
C Control box (if necessary)

5.6.4 Non-Contact Gas Bladder Pumps

C Non-contact gas bladder pump
C Compressor or nitrogen gas tank
C Batteries and charger
C Teflon tubing - enough to dedicate to each well
C Swagelock fitting
C Toolbox supplements - same as submersible pump
C Control box (if necessary)

5.6.5 Suction Pumps

C Pump
C Black PVC coil tubing - enough to dedicate to each well
C Gasoline - if required
C Toolbox
C Plumbing fittings
C Flow meter with gate valve

5.6.6 Inertia Pumps

C Pump assembly (WaTerra pump, piston pump)
C Five gallon bucket

5.6.7 Peristaltic Pumps

C Small diameter "Geotubing"
C Roll of Masterflex™ tubing
C 110 VAC generator or 12 VDC power source
C Knife, screwdriver

6.0 REAGENTS

Reagents may be used for preservation of samples and for decontamination of sampling equipment. The preservatives required are specified by the analysis to be performed and are summarized in Environmental Response Team Center/Response Engineering Analytical Contract (ERT/REAC) SOP #2003, *Sample Storage, Preservation, and Handling*. Decontamination solutions are specified in ERT/REAC SOP #2006, *Sampling Equipment Decontamination*.

7.0 PROCEDURES

7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies needed (i.e, diameter and depth of wells to be sampled).

2. Obtain necessary sampling and monitoring equipment, appropriate to the type of contaminant being investigated. For collection of volatile organic samples, refer to the work plan to ensure that sufficient 40 milliliter (mL) glass sample vials with Teflon lined septa are available. Check availability of preservatives, packing material, sample labels, and coolers. Trip blanks are incorporated into the shipment package to provide a check against cross contamination.

3. Decontaminate or pre-clean equipment and ensure that it is in working order.

4. Perform a general site survey prior to site entry in accordance with the site specific Health and Safety Plan.

5. Identify all sampling locations.

7.2 Field Preparation

1. Start at the least contaminated well, if known.

2. Lay plastic sheeting around the well to minimize likelihood of equipment contamination from the soil adjacent to the well.

3. Remove locking well cap, note location, time of day, and date in field notebook or appropriate log form.

4. Remove well casing cap.

5. Immediately screen headspace of well with an appropriate air monitoring instrument to determine the presence of volatile organic compounds and record flame ionization detector (FID) or photoionization detector (PID) readings in site logbook.

6. Measure distance from water surface to a reference measuring point and record in site logbook. A reference point may be the top of outer protective casing, the top of riser pipe, the ground surface, or the top of a concrete pad. If floating organics are present, the water level and depth to floating product can be measured with an oil/water interface probe. However, the presence of floating organics will indicate the need to reevaluate the validity of groundwater sampling.

7. Measure total depth of well and record in site logbook or on field data sheet.

8. Calculate the volume of water in the well and the volume to be purged using the calculations in Section 8.0.

9. Select the appropriate purging and sampling equipment.

7.3 Purging

The amount of purging required before sampling depends on the intent of the monitoring program as well as the hydrogeologic conditions. General assessment of groundwater quality may require long pumping periods to obtain a sample representative of a large volume of the aquifer. The purge volume is determined prior to sampling and the sample is collected after a known volume of the water is pumped from the well, or the well can be pumped until parameters such as temperature, specific conductivity, pH, or turbidity have stabilized. Groundwater quality in the well is considered stabilized after three sets of consecutive readings indicate no change. The time between readings is based on the purge rate and cumulative volume but generally is between 5 to 15 minutes.

Sampling to define a contaminant plume requires a representative sample from a small volume of the aquifer. This requires that the well be purged enough to remove the stagnant water but not enough to induce flow from other areas. Generally, three well volumes are considered sufficient. The total volume purged, purge method, purge rate, and the start and end times of purging are recorded in the field log book.

The following purging devices are most commonly used. Other evacuation devices are available, but have been omitted in this discussion due to their limited use.

7.3.1 Bailers

Bailers are the simplest purging device and generally consist of a rigid length of tube, usually with a ball check-valve at the bottom. A nylon line is used to tie and lower the bailer into the well and retrieve a volume of water. The three most common types of bailers are made of PVC, Teflon®, and stainless steel. Purging with bailers is best suited to shallow or small diameter wells. For deep, larger diameter wells that require removal of large volumes of water, pumps may be more appropriate.

Equipment needed will include a clean decontaminated bailer, Teflon® or nylon line, a sharp knife, and plastic sheeting.

1. Determine the volume of water to be purged as described in Section 8.0, *Calculations.*

2. Lay plastic sheeting around the well to prevent contamination of the bailer line with soil or other foreign materials. Do not let the bailer line touch the ground.

3. Attach the line to the bailer and lower into the well until the bailer is completely submerged.

4. Pull bailer out ensuring that the line either falls onto a clean area of plastic sheeting or never touches the ground.

5. Empty the bailer into a container of known volume to determine when the purge volume is reached.

6. Dispose of purge waters as specified in the work plan.

7.3.2 Submersible Pumps

The use of submersible pumps for purging is permissible provided they are constructed of noncontaminating materials. The chief drawback, however, is the difficulty in avoiding cross-contamination between wells. Some pumps can be easily disassembled for cleaning, but field decontamination may be difficult and require solvents that can affect sample analysis. The use of submersible pumps in multiple well-sampling programs, therefore, should be carefully considered against other sampling mechanisms (bailers, bladder pumps). In most cases, a sample can be collected by bailer after purging with a submersible pump; however, submersible pumps may be the only practical sampling device for extremely deep wells (greater than 300 feet of hydraulic head). Under those conditions, dedicated pump systems should be considered to eliminate the potential for cross-contamination of well samples.

Submersible pumps generally use either electric or compressed gas for power. Electric powered pumps can run off a 12 volt direct current (DC) rechargeable battery, or a 110 or 220 volt alternating current (AC) power supply. Gasoline used to power electrical generators is a potential source of contamination and should be kept well away from purging and sampling equipment. Those units powered by compressed air normally use a small electric or gas-powered air compressor. They may also use compressed gas (i.e., nitrogen) from bottles. Pumps are available for monitor wells of various depths and diameters.

The following steps describe the use of submersible pumps in purging a well:

1. Determine the volume of water to be purged as described in Section 8.0, *Calculations* .

2. Lay plastic sheeting around the well to prevent contamination of pumps, hoses or lines with soil or other foreign materials.

3. Assemble pump, hoses and safety cable, and lower the pump into the well. Make sure the pump is deep enough so as not to dewater the pump.

4. Attach flow meter to the outlet hose to measure the volume of water purged or measure with a container of known volume.

5. Use a ground fault circuit interrupter (GFCI) or ground the generator to avoid possible electric shock.

6. Attach power supply, and purge the well until the specified volume of water has been removed (or until field parameters, such as temperature, pH, conductivity, etc, have stabilized). Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, reduce the pumping rate.

7. Collect and dispose of purge waters as specified in the work plan.

7.3.3 Non-Contact Gas Bladder Pumps

Pumps in this category may be dedicated to a well and include stainless steel and Teflon® Middleburg-squeeze bladder pumps such as IEA, TIMCO, Well Wizard,or Geolog.

1. Assemble Teflon® tubing, pump and charged control box.

2. Procedure for purging with a bladder pump is the same as for a submersible pump (Section 7.3.2).

3. Adjust flow rate to prevent violent movement of the hose as water is drawn in.

7.3.4 Suction Pumps

Suction pumps include centrifugal, peristaltic and diaphragm. Diaphragm pumps can be used for relatively rapid purging and can be adjusted to a slower rate for sampling. The peristaltic pump is a low volume pump that uses rollers to squeeze the flexible tubing thereby creating suction. The tubing can be dedicated to a well to prevent cross-contamination. Peristaltic pumps, however, require a power source.

1. Assemble the pump, tubing, and power source if necessary.

2. Procedure for purging with a suction pump is exactly the same as for a submersible pump (Section 7.3.2).

7.3.5 Inertia Pumps

Inertia pumps such as the WaTerra pump and piston pump, are manually operated. These pumps are most appropriate to use when wells are too deep to bail by hand, too shallow or too small in diameter to warrant the use of a submersible pump. The pumps are made of plastic and may either be decontaminated or discarded after use.

1. Determine the volume of water to be purged as described in Section 8.0, *Calculations.*

2.. Assemble pump and lower to the appropriate depth in the well.

3. Begin pumping manually, discharging water into a five-gallon bucket (or other graduated vessel). Purge until a specified volume of water has been evacuated (or until field parameters such as temperature, pH, and conductivity, have stabilized).

4. Collect and dispose of purge waters as specified in the work plan.

7.4 Sampling

Before choosing a sampling device, the advantages or disadvantages of any one device, as outlined in Section 5, should be reviewed. It may be appropriate to use a different device to sample than that which was used to purge. The most common example of this is the use of a submersible pump to purge and a bailer to sample. Samples for volatile organics are collected first when sampling for more than one set of parameters, followed in order by samples for semivolatile organic and inorganic analyses.

7.4.1 Bailers

The positive-displacement sampling bailer is perhaps the most appropriate for collection of water samples for volatile analysis. Other bailer types (messenger, bottom fill, etc.) are less desirable, but may be mandated by well conditions and desired sample depth. A sample is obtained with a bailer using the following steps:

1. Surround the monitor well with clean plastic sheeting.

2. Attach a line to a clean decontaminated bailer. Do not let the line touch the ground.

3. Lower the bailer slowly into the well. Stop lowering when adjacent to the screen or at the desired sample depth

4. Allow bailer to fill and then slowly retrieve the bailer from the well.

5. Remove the cap from the sample container and place it on the plastic sheet or in a location where it will not become contaminated. For VOC sampling precautions, see Section 7.6.

6. Slowly pour the sample from the bailer into the sample container. Any necessary preservative should be added to the sample container before sampling.

7. Repeat steps 3, 4, and 6 as necessary to fill the sample container(s).

8. Cap the sample container tightly and place the prelabeled sample container in a carrier.

9. Replace the well cap.

10. Log the collection time, sampling method, and analyses required for all samples in the site logbook and on field data sheets.

11. Package samples and complete necessary paperwork.

7.4.2 Submersible Pumps

Submersible pumps are not recommended for sampling but may be used in some situations. The generator and fuel (if needed) used to operate a submersible pump can be a source of contamination and should be kept separate from the sampling containers during transport and downwind during sampling.

1. Allow the monitor well to recharge after purging, keeping the pump just above the screened section.

2. Attach a clean gate valve to the discharge hose (if not already fitted), and reduce the flow of water to a manageable rate.

3. Assemble the appropriate bottles.

4. If a gate valve is not available, run the water down the side of a clean jar and fill the sample bottles from the jar.

5. Cap the sample container tightly and place the prelabeled sample container in a carrier.

6. Replace the well cap.

7. Log all samples in the site logbook and on the field data sheets and label all of the samples.

8. Package samples and complete the necessary paperwork.

9. Transport sample(s) to the decontamination zone for preparation for transport to the analytical laboratory.

10. Upon sampling completion, remove pump and assembly and fully decontaminate the equipment prior to setting it into the next sample well. When possible, dedicate the pump tubing to the well.

7.4.3 Non-Contact Gas Bladder Pumps

Non-contact gas positive displacement bladder pumps are often used when dedicated pumps are required. These pumps are also suitable for shallow (less than 100 feet) wells. They are somewhat difficult to clean, but may be used with dedicated sample tubing to avoid cleaning. These pumps require a power supply and a compressed gas supply (or compressor). They may be operated at variable flow and pressure rates making them ideal for both purging and sampling. Barcelona et al. (1984) and Nielsen and Yeates (1985) report that the non-contact gas positive displacement pumps cause the least amount of alteration in sample integrity as compared to other sample retrieval methods.

1. Allow the well to recharge after purging.

2. Assemble the appropriate bottles.

3. Turn the pump on, increase the cycle time and reduce the pressure to the minimum that will allow the sample to come to the surface.

4. Non-filtered samples shall be collected directly from the outlet tubing into the sample bottle.

5. For filtered samples, connect the pump outlet tubing directly to the filter unit. The pump pressure should be minimized so that the pressure build up on the filter does not blow out the pump bladder or displace the filter. For the Geotech barrel filter, no actual connections are necessary.

6. Cap the sample container tightly and place the prelabeled sample container in a carrier.

7. Replace the well cap.

8. Log all samples in the site logbook and on the field data sheets, and label all samples.

9. Package samples and complete the necessary paperwork.

10. Transport sample(s) to the decontamination zone for preparation for transport to the analytical laboratory.

11. On completion, remove the tubing from the well and either replace the Teflon tubing and bladder with new dedicated tubing and bladder or rigorously decontaminate the existing materials.

7.4.4 Suction Pumps

Suction pumps are not recommended for sampling because it is operated by a vacuum and could remove volatile organics from the sample.

7.4.5 Inertia Pumps

Inertia pumps may be used to collect samples. It is more common, however, to purge with these pumps and sample with a bailer (Section 7.4.1).

1. Following well evacuation, allow the well to recharge.

2. Assemble the appropriate bottles.

3. Because these pumps are manually operated, the flow rate may be regulated by the sampler. The sample may be discharged from the pump outlet directly into the sample container.

4. Cap the sample container tightly and place the prelabeled sample container in a carrier.

5. Replace the well cap.

6. Log all samples in the site logbook and on the field data sheets and label all samples.

7. Package samples and complete necessary paperwork.

8. Upon completion, remove pump and decontaminate or discard, as appropriate.

7.5 Filtering

Samples collected for dissolved metals analysis may require filtration. The filter must be changed or decontaminated between uses. Several type of filters are available. A barrel filter such as the "Geotech" works with a pneumatic (e.g. bicycle) pump, used to build up positive pressure in the chamber containing the sample, which is then forced through the filter paper (minimum size 0.45 µm) into a jar placed underneath. The barrel itself is filled manually from the bailer or directly via the hose of the sampling pump. The pressure must be maintained up to 30 pounds/square inch (lbs/in^2) by periodic pumping.

A vacuum type filter involves two chambers; the upper chamber contains the sample and a filter (minimum size 0.45 µm) divides the chambers. Using a hand pump or a Gillian type pump, air is withdrawn from the lower chamber, creating a vacuum and thus causing the sample to move through the filter into the lower chamber where it is drained into a sample jar. Repeated pumping may be required to drain all the sample into the lower chamber. If preservation of the sample is necessary, this should be done after filtering.

An in-line filter may be used with a peristaltic pump to transfer the sample from the original sample jar, through the filter, and into a new sample jar. In-line filters are used specifically for the preparation of groundwater samples for dissolved metals analysis, and for filtering large volumes of turbid groundwater. Groundwater samples collected for VOCs are generally not filtered. The filtering of groundwater is performed primarily to allow for the collection of silty or particulate-laden samples that would otherwise interfere with the laboratory analysis. The filters used in groundwater sampling are either cartridge type filters inserted into a reusable housing, or are self-contained and disposable. Disposable filters are preferred and often used to reduce cross-contamination of groundwater samples. Disposable filter chambers are usually constructed of polypropylene material, with an inert filtering material within the housing. Both reusable and disposable filters have barb or national pipe thread (NPT) fittings on the inlet and outlet sides of the housing to connect to d" or e" tubing.

7.6 Special Considerations for VOC Sampling

The proper collection of a sample for VOC analysis requires minimal disturbance of the sample to limit volatilization. Sample retrieval systems suitable for collection of volatile organic samples are: positive displacement bladder pumps, gear driven submersible pumps, syringe samplers and bailers (Barcelona et al, 1984; Nielsen and Yeates, 1985). Field conditions and other constraints will limit the choice of appropriate systems. The concern must be to collect a valid sample that has been subjected to the least amount of turbulence possible.

The following procedures should be used:

1. Open the vial, set cap in a clean place, and collect the sample. When collecting duplicates, collect both samples at the same time.

2. Fill the vial to just overflowing. Do not rinse the vial, or let it excessively overflow. There should be a convex meniscus on the top of the vial.

3. Check that the cap has not been contaminated (splashed) and carefully cap the vial. Place the cap directly over the top and screw down firmly. Do not overtighten and break the cap.

4. Invert the vial and tap gently. Observe vial for at least ten (10) seconds. If an air bubble appears, discard the sample and resample. It is imperative that no air is trapped in the sample vial.

5. The holding time for samples to be analyzed for VOCs is seven days. Samples should be shipped or delivered to the laboratory in as short a time as practical in order to arrive before the holding time has expired. Ensure that the samples are stored at 4EC during transport but do not allow them to freeze. The most readily available method of cooling is to use ice packed in double-sealed plastic bags (Ziploc® baggies).

8.0 CALCULATIONS

If it is necessary to calculate the volume of the well, use the following equation:

Well Volume (gallons) = pr^2hk *[Equation 1]* where:

p	=	3.14
r	=	radius of monitor well (feet)
h	=	height of the water column (feet). This may be determined by subtracting the depth to water from the total depth of the well as measured from the same reference point.
k	=	conversion factor, 7.48 gallons per cubic foot (gal/ft^3)

Monitor well diameters typically have a diameter of 2 to 4 inches. If the diameter of the monitor well is known, standard conversion factors can be used to simplify the equation above.

The volume, in gallons per linear foot, for various standard monitor well diameters can be calculated as follows:

$$\mathbf{V(gal/ft) = pr^2k} \quad \text{or } \mathbf{V = 23.5r^2} \qquad \textit{[Equation 2]}$$

where:

p	=	3.14
r	=	radius of monitoring well (feet)
k	=	conversion factor (7.48 gal/ft^3)

For a 2-inch diameter well, the volume, in gallons per linear foot, can be calculated as follows:

$$\mathbf{V/linear\ ft = pr^2k} \qquad \textit{[Equation 2]}$$
$$= \mathbf{3.14\ (1/12)^2\ (7.48\ gal/ft^3)}$$
$$= \mathbf{0.163\ gal/ft}$$

The well radius must be in feet to be able to use the equation.

The conversion factors **(f)** for the most common diameter monitor wells are as follows:

Well diameter-inches	2	3	4	6
Volume (gal/ft.)	0.1631	0.3670	0.6528	1.4680

If you use the conversation factors above, Equation 1 should be modified as follows:

$$\mathbf{Well\ V = hf} \qquad \textit{[Equation 3]}$$

where:

h	=	height of water column (feet)
f	=	conversion factor

9.0 QUALITY ASSURANCE/QUALITY CONTROL

There are no specific quality assurance (QA) activities that apply to the implementation of these procedures. However, the following general QA procedures apply:

1. All sample collection data, including purge methods and time, sample collection methods, times of collection, analyses required, and decontamination procedures (if any) must be documented on field data sheets or within site logbooks.

2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration must occur prior to purging or sampling and should be done according to the instruction manuals supplied by the manufacturer. All calibration procedures should be documented in the site logbook.

3. The collection of rinsate blanks is recommended to evaluate potential for cross contamination from the purging and/or sampling equipment.

4. Trip blanks are required if analytical parameters include VOCs.

10.0 DATA VALIDATION

This section does not apply to this SOP.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, Occupational Safety and Health Administration (OSHA) or REAC health and safety guidelines. More specifically, depending upon the site specific contaminants, various protective programs must be implemented prior to sampling the first well. The site health and safety plan should be reviewed with specific emphasis placed on the protection program planned for the well sampling tasks. Standard safe operating practices should be followed such as minimizing contact with potential contaminants in both the vapor phase and liquid matrix through the use of respirators and disposable clothing.

When working around volatile organic contaminants:

1. Avoid breathing volatile constituents venting from the well.

2. Check the well head-space with a FID/PID prior to sampling.

3. If monitoring results indicate organic constituents, it may be necessary to conduct sampling activities in Level C protection. At a minimum, skin protection will be afforded by disposable protective

clothing.

Physical hazards associated with well sampling:

1. Lifting injuries associated with pump and bailers retrieval; moving equipment.

2. Use of pocket knives for cutting discharge hose.

3. Heat/cold stress as a result of exposure to extreme temperatures in protective clothing.

4. Slip, trip, fall conditions as a result of pump discharge.

5. Restricted mobility due to the wearing of protective clothing.

6. Electrical shock associated with use of submersible pumps is possible. Use a GFCI or a copper grounding stake to avoid this problem.

12.0 REFERENCES

Barcelona, M.J., J.A. Helfrich, E.E. Garske, J.P. Gibb. 1984. "A Laboratory Evaluation of Groundwater Sampling Mechanisms." *Groundwater Monitoring Review*. p. 32-41.

Barcelona, M.J., J.A. Helfrich, E.E. Garske. 1985. "Sampling Tubing Effects on Groundwater Samples." *Analytical Chemistry*. Vol. 57. p. 460-463.

Nielsen, David M. and Gillian L. Yeates. 1985. "A Comparison of Sampling Mechanisms Available for Small-Diameter Groundwater Monitoring Wells." *Groundwater Monitoring Review*. p. 83-99.

13.0 APPENDICES

This section does not apply to this SOP.

Appendix J

Sampling Data Sheets

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 18 /14	**Samplers:**	START BERECZ
Sample Location	SBA- 01 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.165680 °N	**Longitude**	92.610404 °W
Photo #	2366, 2367, 2368, 2370		
Photo Description	SAMPLE LOCATION; LOOKING DOWN RIVER, AND UP RIVER		

SEDIMENT SAMPLE

Sample ID #	SBA- 01 SD-ESI	**Sample Time**	1249
Location Description	BACKGROUND SAMPLE IN SHIPPING CHANNEL ALONG LDB		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______ SD-ESI

Relinquished By:	START ______	**Date**		**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 18 /14	**Samplers:**	START BERECZ
Sample Location	SBA- 02 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1657539 °N	**Longitude**	92.6149066 °W
Photo #	2363, 2364 2365, 2371		
Photo Description	SAMPLE LOCATION. LOOKING UPSTREAM AND DOWNSTREAM FROM SAMPLE LOCATION.		

SEDIMENT SAMPLE

Sample ID #	SBA- 02 SD-ESI	**Sample Time**	1305
Location Description	BACKGROUND SAMPLE ON LDB OF NATURAL CHANNEL (OXBOW)		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 18 /14	**Samplers:**	START BERECZ
Sample Location	SBA- 03 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1629749° N	**Longitude**	92.6098827° W
Photo #	2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2369		
Photo Description	LOCATION SBA-03-ESI SITE PHOTO. SHEEN AT SAMPLING LOCATION SHEEN WHILE VIBRA CORING		

SEDIMENT SAMPLE

Sample ID #	SBA- 03 SD-ESI	**Sample Time**	1236
Location Description	RDB ON RIVER JUST DOWNSTREAM FROM SLIP.		
Analyses			
Field Dup	30 → 1242 hrs	**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	START BERERZ/MOISAN
Sample Location	SBA- 04 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1623307°N	**Longitude**	92.6095560°W
Photo #	2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339		
Photo Description	SAMPLE LOCATION, TEAM COLLECTING VIBRACORE		

SEDIMENT SAMPLE

Sample ID #	SBA- 04 SD-ESI	**Sample Time**	1550
Location Description	RDB IN RIVER NEAR DRY DOCK (SOURCE 9).		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	START BERECZ / BISCOCHO
Sample Location	SBA- 05 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.16090120° N	**Longitude**	92.6108757 ° W
Photo #	2321, 2322, 2323, 2324, 2325, 2326, 2327		
Photo Description	LOCATION SHOTS, TEAM VIBRACORING, SITE PHOTOS, PUBLIC BOATERS IN INLET WHILE COLLECTING CORE		

SEDIMENT SAMPLE

Sample ID #	SBA-_______SD-ESI	**Sample Time**	1340
Location Description			
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-_______SD-ESI
Relinquished By:	START _________ **Date**	**Received By:**	START _____________

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	START BERECZ/BISCOCHO
Sample Location	SBA- 06 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1603250' N	**Longitude**	92.6079592 0 W
Photo #	2315, 2316, 2317, 2318, 2319, 2320		
Photo Description	TEAM VIBRA CORING. LOCATION SHOTS.		

SEDIMENT SAMPLE

Sample ID #	SBA-______SD-ESI	**Sample Time**	1350
Location Description			
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 06 /14	**Samplers:**	START BERECZ/BISCOCHO
Sample Location	SBA- 07 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1592701 N	**Longitude**	92.6082628 W
Photo #	2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307		
Photo Description	TEAM SETTING UP TO VIBRA CORE LOCATION. PHOTO OF LOCATION. LOOKING DOWNSTREAM AND UPSTREAM FROM LOCATION. TEAM PREPARING TO VIBRA CORE. LOCATION DURING VIBRACORE. VIBRA CORE PROCESS/ACTIVITIES		

SEDIMENT SAMPLE

Sample ID #	SBA- 07 SD-ESI	**Sample Time**	09/17/2014 @ 0819
Location Description	RIGHT DESCENDING BANK DOWNSTREAM FROM SOURCE 8		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: __SBA Shipyard Expanded Site Inspection__

DATA SHEET

Date:	09/ 16 /14	**Samplers:**	START Berecz
Sample Location	SBA- 08 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1572301N	**Longitude**	92.6102929
Photo #	2280, 2281, 2282, 2283, 2284, 2285, 2286		
Photo Description	LOOKING NORTH AND SOUTH FROM LOCATION. TEAM SETTING UP. PHOTO OF LOCATION BEFORE VIBRACORING. PHOTO OF LOCATION AFTER CORING. TEAM CUTTING CORE TUBE AFTER VIBRACORING. PUMPING WATER OUT OF CORE.		

SEDIMENT SAMPLE

Sample ID #	SBA- 08 SD-ESI	**Sample Time**	09/17/2014 @ 0835
Location Description	RIGHT DESCENDING BANK, DOWNSTREAM FROM SITE, ALONG WETLAND BOUNDARY WITH RIVER		

SBA-ESI-8050
0840

Analyses

Dup

Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	

Starting Tag No	6-		**Sample Number(s)**	SBA-______SD-ESI	
Relinquished By:	START ______	**Date**		**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 16 /14	**Samplers:**	START BELEEZ / BISCOCHO
Sample Location	SBA- 090 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1563715 N	**Longitude**	92.6109621 W
Photo #	2291, 2292, 2293, 2294, 2295, 2296		
Photo Description	TEAM COLLECTING PONAR SAMPLES, SAMPLE COLLECTED BY PONAR. SITE LOCATION LOOKING EAST.		

SEDIMENT SAMPLE

Sample ID #	SBA- 09 SD-ESI	**Sample Time**	1600
Location Description	LEFT ~~RIGHT~~ DESCENDING BANK, DOWNSTREAM FROM SITE, APPROXIMATELY 20'-25' OFF SHORELINE OF RIVER, ALONG WETLAND BOUNDARY		

Analyses

Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI

Relinquished By:	START ______	**Date**		**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	~~START~~ ULS- EARLY
Sample Location	SBA- 10 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1596657°N	**Longitude**	92.6122806°W
Photo #	2341, 2342, 2343		
Photo Description	TEAM COLLECTING GRAB SEDIMENT SAMPLE ALONG WETLAND		

SEDIMENT SAMPLE

Sample ID #	SBA- 10 SD-ESI	**Sample Time**	1635
Location Description	WETLAND NEAR SOURCE 6. Sample has a hydrocarbon smell, with lots of organic debris.		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI

Relinquished By:	START ______	**Date**		**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	~~START~~ URS - EARLY
Sample Location	SBA- 11 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.1604431 °N	**Longitude**	92.6116140° W
Photo #	2344, 2345, 2346, 2347		
Photo Description	TEAM COLLECTING GRAB SEDIMENT SAMPLE ALONG WETLAND.		

SEDIMENT SAMPLE

Sample ID #	SBA- 11 SD-ESI	**Sample Time**	1647
Location Description	WETLAND NEAR SOURCE 6 - sample has hydrocarbon smell, and water had a sheen on top.		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	~~START~~ URS - DARLY
Sample Location	SBA- 12 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude		**Longitude**	
Photo #	2348, 2349		
Photo Description	TEAM COLLECTING GRAB SEDIMENT SAMPLE ALONG WETLAND.		

SEDIMENT SAMPLE

Sample ID #	SBA- 12 SD-ESI	**Sample Time**	1703
Location Description	WETLAND NEAR SOURCE 6 - Sample has organic swamp smell.		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

GROUNDWATER WELL SAMPLING

Date: 9/18/14 **Site Name:** **SBA Shipyard Expanded Site Inspection**

Samplers: STARTs Moison/~~Holewka~~ Biscocho

Weather Conditions: Cloudy

Sample Location No.	SBA-ESI-13
Sample Location Name	Monitor Well #5 (MW5)
GPS	N, W

	Sample Type
	Split
✓	Duplicate
	QA/QC (triple volume)
	Composite / Grab (circle one)
✓	Other MS/MSD

Well Information	
Well ID No.	MW5
Depth to H_2O Level	5 ft
Depth of Well	12 ft
Well Diameter	2 in.
Other	No / ~~With free product~~

PURGE

Time Interval: 0938 to 0950 hours

Conditions	1st	2nd	3rd	4th	5th
Time	0938	0950			
pH	6.65	6.54			
Conductivity (mS/cm)					
Temperature (°C)	26.1	26.7			
Turbidity (NTU)					
Dissolved Oxygen (D.O.) (mg/L)					
Salinity (%)					
Color					
Odor					
Other (gallons purged)	4	5	~~3~~	~~4~~	

SAMPLING

Time: 0952 hours - 1000 → Duplicate (time) → SBA-ESI-31MW

pH	**Conductivity** (mS/cm)	**Temp** (°C)	**Turbidity** (NTU)	**DO** (mg/L)	**Salinity** (%)	**Color**	**Odor**	**Other**
6.71		26.8				Clear	None	

Collection Method	~~Low flow peristaltic pump~~ Bailer
Monitor Readings	
Comments	YSI unit Model 63/25 FT SN: 02E1011 AI (pH Salinity, conductivity & temp)

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	START Moisan & Brenda Cook
Sample Location	SBA-~~10~~ 14 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude		**Longitude**	
Photo #			
Photo Description	Facing North of stained soil at corner of old boiler.		

~~SEDIMENT~~ Waste SAMPLE

Sample ID #	~~SBA-____SD-ESI~~ Waste 14	**Sample Time**	0955
Location Description	Southeast corner of old boiler in stained (black) Soil.		

Analyses

Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ________

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 17 /14	**Samplers:**	START Moisan ~~Cook~~ Brenda
Sample Location	SBA-~~XX~~15-ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude		**Longitude**	
Photo #	Facing south at Waste Sample 15		
Photo Description			

~~SEDIMENT~~ Waste SAMPLE

Sample ID #	SBA-15 ~~SD-ESI~~	**Sample Time**	1010
Location Description	Sample collected from Eastern Barge. Sample is hard, black and oily. Strong hydrocarbon smell coming off sample.		
Analyses			
Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-______SD-ESI
Relinquished By:	START ______ **Date**	**Received By:**	START ______

Dynamac
A Subsidiary of CSS, Inc.

Site Name: SBA Shipyard Expanded Site Inspection
DATA SHEET

Date:	09/ 18 /14	**Samplers:**	START Early /Mohler
Sample Location	SBA- 16 -ESI		
Address	9040 Castex Landing Road, Highway 3166, Jefferson Davis Parish, Jennings, LA 70546		
Property ID	SSID: A6FX CERCLIS: LAD008434185		
GPS Coordinates			
Latitude	30.158366	**Longitude**	- 92.609561
Photo #	SBA-ESI-16-C & SBA-ESI-16-D		
Photo Description	Sediment sample collection @ location SBA-ESI-016, near the edge of the terasse.		

SEDIMENT SAMPLE

Sample ID #	SBA- 16 SD-ESI	**Sample Time**	1355
Location Description	Wetland sample. In terasse & Mermentau River.		

Analyses

Field Dup		**Lab QC**	
VOA (Core n One)		**SVOA/PEST/PCB (8 oz)**	
% Moisture (4 oz)		**Dioxins/Furans (16 oz)**	
Cyanides		**Metals + Mercury (8 oz)**	
Starting Tag No	6-	**Sample Number(s)**	SBA-_______SD-ESI

Relinquished By:	START __________	**Date**		**Received By:**	START __________

Appendix K

Memorandum to File: Observed Recreational Fishing

Memorandum

To: To File

From: START-3 Dynamac Noel Biscocho NBiscocho

CSS-Dynamac

Date: November 18, 2014

Subject: Observed Recreational Fishing

On September 15, 2014, a family of 5 were observed fishing on the Barge Slip (Source No. 8) on the Mermentau River by EPA SAM Brenda Cook and START-3 personnel (near location SBA-ESI-05). The family stated that they don't fish in the barge slip often, but when they do, they only catch catfish for consumption.

On September 17, 2014, Sediment samples SBA-ESI-05 and SBA-ESI-06 were collected in the barge slip using a vibracore. In addition:

- public boaters were observed in the inlet while collecting the sediment sample core SBA-ESI-05.
- fisherman was observed during sediment sample collection near location SBA-ESI-04.

Attachment:

- Excerpt pages from the START-3 logbook during the Expanded Site Inspection sampling (Sept. 2014).

- Excerpt pages from the START-3 photographic documentation during the Expanded Site Inspection sampling (Sept. 2014).

- Figure of sampling locations.

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...for outdoor writing people."

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For best results, use a pencil or an all-weather pen.

Logbook 1of 2

"Rite in the Rain"®
ALL-WEATHER
JOURNAL
No. 391

Site Name: SBA Shipyard Inc.
Type of Activity: Expanded Site Inspection (ESI)
Site Location: 9040 Castex Landing Road
Jefferson [Parish] Davis
Jennings, LA 70546
CERCLIS No: LAD 008434185
SSID No: A6FX

"Rite in the Rain" ®
ALL-WEATHER WRITING PAPER

INCH 1 2 3 4 5 6

Site Name: SBA Shipyard Inc.

type of Activity: Expanded Site Inspection (ESI)

Site location: 9040 Castex Landing Road

~~Name~~ Jefferson Parish → Davis

Jennings, LA 70546

Address

Latitude from site Entrance -30° 9' 50.9394" N

Longitude from Site Entrance - 92° 36' 57.168" W

~~Phone~~

CERCLIS No: LA0 008434185

SSID: ~~Project~~ A6FX

EPA Site Assessment Manager: Brenda Cook

START TDD No: TDD-T0-0009-12-10-02

Type of Documentation: Logbook of Site Activities

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

1

CONTENTS

PAGE	REFERENCE	DATE
	[redacted]	
	[redacted] grazes his cattle and sheep on this property. He came on site on 09/16/2014, and chatted with Brenda Cook.	
	Leland Bolland - Mr. Snaihall's partner	

START

DYNAMAC® CORPORATION

09/15/2014 Paul Moisan

09/15/2014 - 1730 arrive at site, meet up with URS personnel at site. People on site are Paul Moisan, Noel Biscocho, Karen Berecz (all three with Dynamac; Michael Mohler, Kelly Turk, Brian Early (all three from URS); and Brenda Cook (EPA). Crew walks site to find launch spot for boats, and where to put command spot. P.J.M.

1800 - A small boat with a family of five is seen fishing on the Mermentau River next to the site. They said that they don't fish here often, but when they do, they've only caught a few catfish for consumption in this area. P.J.M.

1845 - Crew departs site, end of day.

Paul Moisan

09/16/2014 - Paul Moisan

09/16/2014 - 0715 arrive at site. URS and Dynamac personnel (Moisan, Biscocho, Berecz); URS (Early, Mohler, Turk) and Brenda Cook (EPA). P.J.M.

0735 - Crew holds safety meeting. Main topics at safety meeting include slips, trips, falls, water hazards, heat, and biological hazards. P.J.M.

The weather is warm, humid and clear, 74°F, with a chance of thunderstorms this afternoon.

0910 - Gilbert Walthup and Curly Gillery of Leevac show up at site. Gilbert shows where the Leevac Property line is, in the center of the site. Brenda wants us to GPS the property line. P.J.M.

Brenda wants us to include property deeds to verify in report. P.J.M.

0915 - Berenda Le Compte and Mike Hoskins of Lake Charles Coast Guard show up on site. Brenda Cook walks us (Coast Guard, Moisan, and Mark Hayes (EPA) around site. Hayes talks to Hoskins about removal action for the barges. Brenda Cook says that the owner stated that several

Logbook Photo #	SDC1002
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	SE
Date	9/15/14
Time	1833 hrs
Photographer	N. Biscocho (START)
Witness	M. Mohler (START-URS)

Description:

- A family of 5 seen fishing on the Barge Slip on the Mermentau River. The family stated that they don't fish here often, but when they do, they only catch catfish for consumption.
- Sediment samples SBA-ESI-05 and SBA-ESI-06 were collected here on 9/17/14.
- (for reference: the buried barge area [*not seen on this photo*] is located on the right side of this photo).

Logbook Photo #	SDC12326
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	NW
Date	9/17/14
Time	1128 hrs
Photographer	K. Berecz (START)
Witness	N. Biscocho (START)

Description:

- Public boaters observed in the inlet while collecting the sediment sample core SBA-ESI-05.
- Sediment samples SBA-ESI-05 and SBA-ESI-06 were collected this barge slip on 9/17/14.
- (for reference: the buried barge area [*not seen on this photo*] is located on the left side of this photo).

Logbook Photo #	SDC12331
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	N
Date	9/17/14
Time	1406 hrs
Photographer	K. Berecz (START)
Witness	P. Moisan (START)

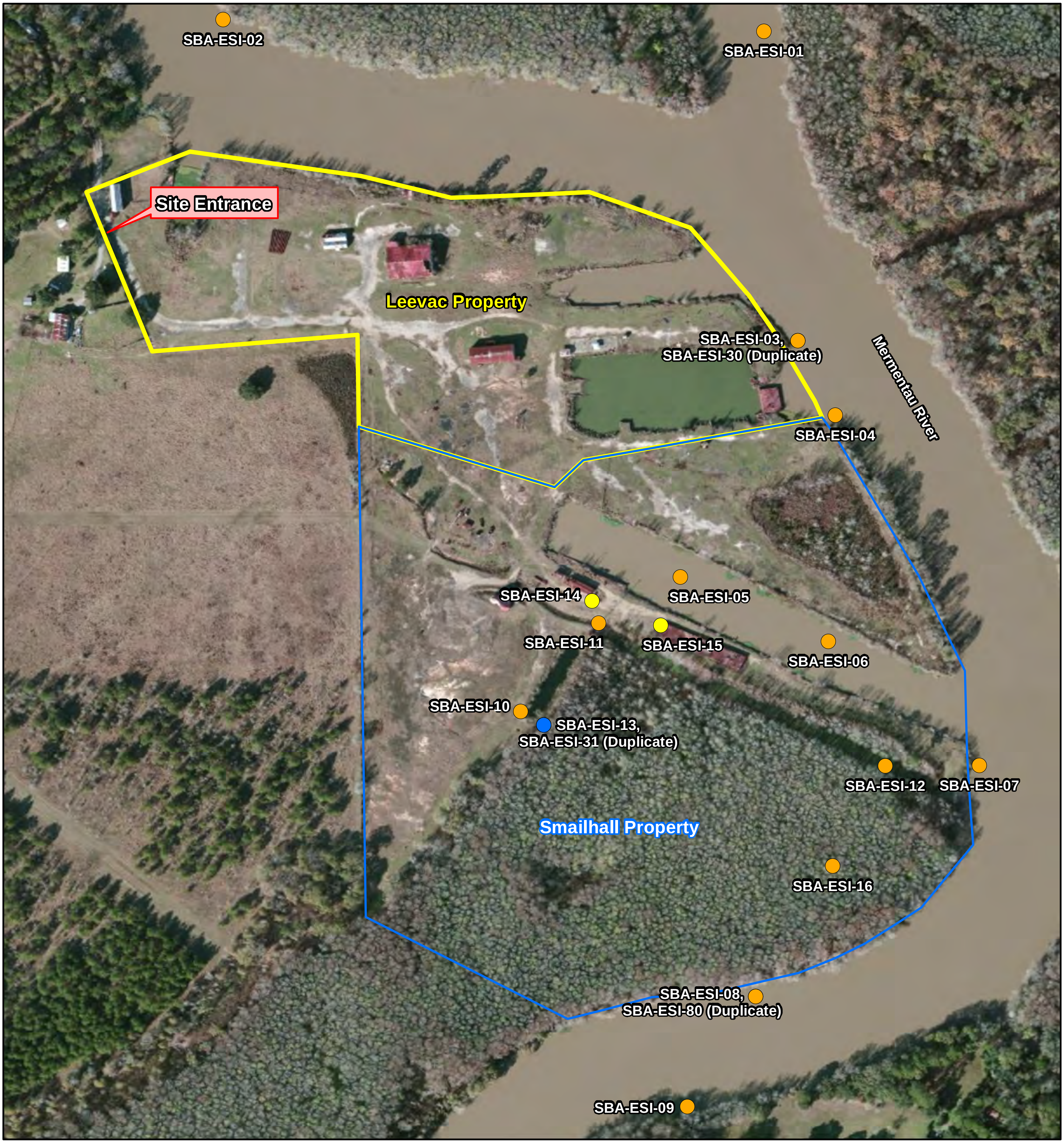
Description:

Fisherman near location SBA-ESI-04

Logbook Photo #	SDC12276
US EPA ID / Task Order Number	CERCLIS No. LAD008434185 / TO-0009-12-10-02
Site	SBA Shipyard, Inc. – Expanded Site Inspection (ESI)
Location Address	9040 Castex Landing Road
City, State	Jennings, Louisiana
Parish	Jefferson Davis
Direction/Orientation	W
Date	9/16/14
Time	1141 hrs
Photographer	K. Berecz (START)
Witness	B. Early (START-URS)

Description:

Public boater observed during Vibracore sediment sampling activities.



Legend

- Sediment
- Groundwater
- Waste
- Leevac Property
- Smailhall Property

N W E S

1:5,000

0 250 500 1,000 Feet

US EPA Region 6
START-3

Figure 4. Expanded Site Inspection Property Boundary Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

September 2014

Appendix L
Data Quality Assessment

SBA SHIPYARD
JENNINGS, LOUISIANA
DATA QUALITY REVIEW REPORT

Date: November 7, 2014
Laboratory: EPA Region 6 Laboratory, Houston, Texas
Laboratory Project #: 14SF149
Data Quality Review Performed By: Lisa Graczyk, Dynamac Corporation (Dynamac)
Dynamac Work Order #: S109-22J

1.1 PROJECT-SPECIFIC DATA QUALITY OBJECTIVES

The laboratory data were reviewed to ensure that DQOs for the project were met. The following describes the laboratories' ability to meet project DQOs for precision, accuracy, and completeness and the field team's ability to meet project DQOs for representativeness and comparability. The laboratory and the field team were able to meet DQOs for the project.

1.1.1 Precision

Precision measures the reproducibility of the sampling and analytical methodology. Laboratory and field precision is defined as the relative percent difference (RPD) between duplicate sample analyses. The laboratory duplicate samples and/or MS/MSD samples measure the precision of the analytical method.

The RPD values were reviewed for all laboratory duplicate samples and/or MS/MSD samples. None of the data were qualified due to poor agreement between native and duplicate samples. Although one RPD was outside quality control (QC) limit in an MS/MSD, the laboratory did not apply qualification and stated that the RPD exceedance should not affect the samples. Precision was acceptable.

1.1.2 Accuracy

Accuracy measures the reproducibility of the sampling and analytical methodology. Laboratory accuracy is measured by reviewing the laboratory control sample (LCS) percent recoveries (%R) to ensure that control limits are met. The LCS %R values were reviewed for all appropriate sample analyses. None of the data were qualified based on LCS recoveries. Laboratory accuracy was acceptable.

Data Quality Review
SBA Shipyard
EPA Region 6 Laboratory, Houston
Laboratory Job #14SF149

The laboratory did flag detected carbazole results with a “J” as estimated because calibration was outside QC limits for this compound.

1.1.3 Completeness

Data completeness is defined as the percentage of usable data (usable data divided by total possible data). All laboratory data were reviewed for usability and 100 percent were determined to be usable. Data completeness is acceptable.

1.1.4 Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental condition. The number and selection of samples were determined in the field to account accurately for site variations and sample matrices. The DQOs for representativeness were met.

1.1.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this site followed applicable field sampling techniques and specific analytical methodology. The DQOs for comparability were met.

1.2 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PARAMETERS

The laboratory data also were reviewed for holding times, laboratory blanks, serial dilution samples, rinsate and trip blanks, surrogates, and internal standards. These QA/QC parameters are summarized below. In general, the laboratory QA/QC parameters were considered acceptable and the data is usable as qualified.

Data Quality Review
SBA Shipyard
EPA Region 6 Laboratory, Houston
Laboratory Job #14SF149

1.2.1 Holding Times

All samples were analyzed within holding time limits.

1.2.2 Laboratory Blanks

All laboratory blanks met the frequency criteria. SVOCs were not detected in the laboratory blanks above the reporting limits.

1.2.3 Serial Dilution

Serial dilution is not applicatle to SVOC analyses.

1.2.4 Rinsate Blank

Rinsate blanks were not collected for this sampling event.

1.2.5 Trip Blanks

Trip blanks are not required and were not collected for SVOC analyses.

1.2.6 Surrogates

Surrogate results were within control limits for %R.

1.2.7 Internal Standards

In sample SBA-ESI-11SD, dibenz(a,h)anthracene was flagged as estimated (J flag) due to an internal standard recovery being outside QC limits. No other failed QC criteria were noted with internal standards.

SBA SHIPYARD
JENNINGS, LOUISIANA
DATA VALIDATION REPORT

Date: October 27, 2014
Laboratory: ALS Environmental (ALS), Houston, Texas
Laboratory Project #: E1401160
Data Validation Performed By: Lisa Graczyk, Dynamac Corporation (Dynamac)
Dynamac Work Order #: S109-22J

This data validation report has been prepared by Dynamac. This report documents the data validation for one soil and one solid sample collected for the SBA Shipyard Site that were analyzed for the following parameters and U.S. Environmental Protection Agency methods:

- Polychlorinated Dibenzodioxins (dioxin) and Polychlorinated dibenzofurans (furan) by SW-846 Method 8290

A level II data package was requested from ALS. The data validation was conducted in general accordance with the U.S. EPA “Contract Laboratory Program National Functional Guidance for for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans Data Review” dated September 2011. The Attachment contains the results summary sheets with the hand-written qualifiers applied during data validation.

Data Validation Report
SBA Shipyard
ALS Environmental
Laboratory Job #: E1401160

DIOXINS AND FURANS BY SW-846 METHOD 8290

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
SBA-ESI-14	E1401160-001	Soil	9/17/2014	10/4/2014
SBA-ESI-15	E1401160-002	Solid	9/17/2014	10/10/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 30 days from sample collection to extraction and 45 days from extraction to analysis.

3. Labeled Standard Recoveries

The percent recoveries of the labeled standards were within the quality control (QC) limits specified in the method of 40 to 135 percent except for as follows.

In sample SBA-ESI-14, the following internal standards were detected low, slightly below the QC limit: 13C-1,2,3,7,8-PeCDD; 13C-OCDD; 13C-1,2,3,7,8-PeCDF; 13C-2,3,4,7,8-PeCDF; and 13C-1,2,3,4,6,7,8-HpCDF. In sample SBA-ESI-14, the results for these compounds were flagged “J” as estimated.

In sample SBA-ESI-15, all internal standard recoveries were very low, 0 to 2 percent recovery. The laboratory stated that the sample was put through multiple clean up procedures and re-extracted. However, the second extraction resulted in even poorer labeled standard recoveries; therefore, the original extraction was reported. Because the signal-to-noise ratios were all greater than 10:1, the detected results weren’t rejected. In accordance with the data validation guidance, all detected results were flagged “J” as estimated and non-detects were flagged “R” as rejected. The low labeled standard recoveries are most likely due to matrix interference.

Data Validation Report
SBA Shipyard
ALS Environmental
Laboratory Job #: E1401160

3. Blanks

A method blank was analyzed as required and contained the following target compound above the reporting limit: 2,3,7,8-TCDF. The detected result for 2,3,7,8-TCDF was flagged "J" as estimated.
In addition, several target compounds were detected below the reporting limits but above the estimated detection limit in the method blank. If these target compounds detected in the blank were detected in the sample below the reporting limit, the result was flagged "J" as estimated.

Note that the laboratory flagged results with a "B" that were also detected in the method blank.

4. Laboratory Control Sample (LCS) Results

The LCS recoveries were within QC limits.

5. Overall Assessment

The main issue with this data package was the low labeled standard recoveries in sample SBA-ESI-15 due to apparent matrix interference. ALS flagged some sample results with the following qualifiers:

- **B** - Indicates the associated analyte is found in the method blank, as well as in the sample.
- **J** - Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).
- **K** - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration (EMPC) for the associated compound.
- **Y** - Labeled standards with recoveries outside the acceptance limits are flagged with 'Y'. In all cases, the signal-to-noise ratios are greater than 10:1.

The dioxin/furan results are acceptable for use as qualified based on the information received.

Data Validation Report
SBA Shipyard
ALS Environmental
Laboratory Job #: E1401160

ATTACHMENT

ALS ENVIRONMENTAL
RESULTS SUMMARY WITH QUALIFIERS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	ng/Kg
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 01:50
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231754	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231750

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.834		0.242	0.563	0.85	1.001	1
1,2,3,7,8-PeCDD	1.66	**BJK** J	0.161	2.82	1.92	1.000	1
1,2,3,4,7,8-HxCDD	1.22	**BJK** J	0.117	2.82	0.97	1.000	1
1,2,3,6,7,8-HxCDD	3.51		0.137	2.82	1.40	1.000	1
1,2,3,7,8,9-HxCDD	3.40		0.117	2.82	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	37.6		0.181	2.82	0.96	1.000	1
OCDD	418	J	0.782	5.63	0.89	1.000	1
2,3,7,8-TCDF	2.83	**B** J	0.207	0.563	0.76	1.001	1
1,2,3,7,8-PeCDF	2.83	**B** J	0.109	2.82	1.49	1.001	1
2,3,4,7,8-PeCDF	4.04	**B** J	0.0836	2.82	1.51	1.000	1
1,2,3,4,7,8-HxCDF	3.05	**B**	0.139	2.82	1.41	1.000	1
1,2,3,6,7,8-HxCDF	2.54	**BJ** J	0.108	2.82	1.16	1.000	1
1,2,3,7,8,9-HxCDF	1.06	**BJ** J	0.143	2.82	1.35	1.000	1
2,3,4,6,7,8-HxCDF	5.04		0.143	2.82	1.42	1.000	1
1,2,3,4,6,7,8-HpCDF	25.0	J	0.211	2.82	1.15	1.000	1
1,2,3,4,7,8,9-HpCDF	1.53	**BJK** J	0.229	2.82	1.47	1.000	1
OCDF	14.7	**B**	0.548	5.63	0.87	1.005	1
Total Tetra-Dioxins	7.73		0.242	0.563	0.81		1
Total Penta-Dioxins	21.4		0.161	2.82	1.72		1
Total Hexa-Dioxins	44.9		0.123	2.82	1.24		1
Total Hepta-Dioxins	90.4		0.181	2.82	1.03		1
Total Tetra-Furans	28.4		0.207	0.563	0.76		1
Total Penta-Furans	48.4		0.0782	2.82	1.58		1
Total Hexa-Furans	39.5		0.132	2.82	1.31		1
Total Hepta-Furans	39.7		0.219	2.82	1.15		1

LG
10-27-14

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	Percent
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/04/14 01:50
Prep Method:	Method	**Date Extracted:**	9/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P231754	**Blank File Name:**	P231791
ICAL Date:	08/24/14	**Cal Ver. File Name:**	P231750

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	965.569	48		40-135	0.77	1.026
13C-1,2,3,7,8-PeCDD	2000	740.123	37	**Y**	40-135	1.56	1.206
13C-1,2,3,4,7,8-HxCDD	2000	982.035	49		40-135	1.25	0.990
13C-1,2,3,6,7,8-HxCDD	2000	807.600	40		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	842.150	42		40-135	1.09	1.066
13C-OCDD	4000	1437.043	36	**Y**	40-135	0.90	1.139
13C-2,3,7,8-TCDF	2000	948.360	47		40-135	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	718.313	36	**Y**	40-135	1.56	1.160
13C-2,3,4,7,8-PeCDF	2000	729.340	36	**Y**	40-135	1.58	1.196
13C-1,2,3,4,7,8-HxCDF	2000	927.094	46		40-135	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	967.477	48		40-135	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	845.276	42		40-135	0.52	1.007
13C-2,3,4,6,7,8-HxCDF	2000	891.020	45		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	617.567	31	**Y**	40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	921.582	46		40-135	0.42	1.079
37Cl-2,3,7,8-TCDD	800	380.903	48		40-135	NA	1.027

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	ng/Kg
Lab Code:	E1401160-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.834**	0.242	0.563	1	1	0.834
1,2,3,7,8-PeCDD	**1.66**	0.161	2.82	1	1	1.66
1,2,3,4,7,8-HxCDD	**1.22**	0.117	2.82	1	0.1	0.122
1,2,3,6,7,8-HxCDD	**3.51**	0.137	2.82	1	0.1	0.351
1,2,3,7,8,9-HxCDD	**3.40**	0.117	2.82	1	0.1	0.340
1,2,3,4,6,7,8-HpCDD	**37.6**	0.181	2.82	1	0.01	0.376
OCDD	**418**	0.782	5.63	1	0.0003	0.125
2,3,7,8-TCDF	**2.83**	0.207	0.563	1	0.1	0.283
1,2,3,7,8-PeCDF	**2.83**	0.109	2.82	1	0.03	0.0849
2,3,4,7,8-PeCDF	**4.04**	0.0836	2.82	1	0.3	1.21
1,2,3,4,7,8-HxCDF	**3.05**	0.139	2.82	1	0.1	0.305
1,2,3,6,7,8-HxCDF	**2.54**	0.108	2.82	1	0.1	0.254
1,2,3,7,8,9-HxCDF	**1.06**	0.143	2.82	1	0.1	0.106
2,3,4,6,7,8-HxCDF	**5.04**	0.143	2.82	1	0.1	0.504
1,2,3,4,6,7,8-HpCDF	**25.0**	0.211	2.82	1	0.01	0.250
1,2,3,4,7,8,9-HpCDF	**1.53**	0.229	2.82	1	0.01	0.0153
OCDF	**14.7**	0.548	5.63	1	0.0003	0.00441
		Total TEQ				6.82

2005 WHO TEFs, ND = 0

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Soil	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-14	**Units:**	Percent
Lab Code:	E1401160-001	**Basis:**	As Received

Total Solids Run Create

Analysis Method:	ALS SOP	**Date Analyzed:**	09/30/14 11:19
	7.985g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	87.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	ng/Kg
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 12:30
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.212g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174008	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U R	4.99	4.99			1
1,2,3,7,8-PeCDD	ND	U	13.4	13.4			1
1,2,3,4,7,8-HxCDD	ND	U	21.3	21.3			1
1,2,3,6,7,8-HxCDD	ND	U	20.5	20.5			1
1,2,3,7,8,9-HxCDD	52.1	J	19.4	19.4	1.09	1.006	1
1,2,3,4,6,7,8-HpCDD	41.0	J	4.11	4.11	1.08	1.000	1
OCDD	1370	J	4.87	6.10	0.92	1.000	1
2,3,7,8-TCDF	ND	U R	38.5	38.5			1
1,2,3,7,8-PeCDF	ND	U R	19.2	19.2			1
2,3,4,7,8-PeCDF	46.8**K**	J	38.9	38.9	0.99	1.001	1
1,2,3,4,7,8-HxCDF	26.6**K**		16.0	16.0	0.70	1.000	1
1,2,3,6,7,8-HxCDF	26.2**K**		18.6	18.6	1.47	1.000	1
1,2,3,7,8,9-HxCDF	9.70**K**		4.07	4.07	0.96	1.000	1
2,3,4,6,7,8-HxCDF	32.2		22.8	22.8	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	41.7		26.4	26.4	1.15	1.000	1
1,2,3,4,7,8,9-HpCDF	32.3**K**		11.6	11.6	1.29	1.000	1
OCDF	19.7**K**		4.80	6.10	1.20	1.005	1
Total Tetra-Dioxins	ND	U R	4.99	4.99			1
Total Penta-Dioxins	ND	U R	13.4	13.4			1
Total Hexa-Dioxins	52.1	J	20.4	20.4	1.09		1
Total Hepta-Dioxins	41.0	J	4.11	4.11	1.08		1
Total Tetra-Furans	ND	U R	38.5	38.5			1
Total Penta-Furans	ND	U R	30.4	30.4			1
Total Hexa-Furans	32.2	J	9.71	9.71	1.24		1
Total Hepta-Furans	41.7	J	16.0	16.0	1.15		1

L.G.
10/27/14

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	Percent
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	10/10/14 12:30
Prep Method:	Method	**Date Extracted:**	10/4/14
Sample Amount:	10.212g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P174008	**Blank File Name:**	P174027
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P174000

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	30.541	2	**Y**	40-135	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	6.756	0	**Y**	40-135	1.39	1.176
13C-1,2,3,4,7,8-HxCDD	2000	4.155	0	**K**	40-135	1.03	0.991
13C-1,2,3,6,7,8-HxCDD	2000	4.135	0	**Y**	40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	15.673	1	**K**	40-135	1.22	1.065
13C-OCDD	4000	78.523	2	**Y**	40-135	0.86	1.141
13C-2,3,7,8-TCDF	2000	4.799	0	**Y**	40-135	0.67	0.993
13C-1,2,3,7,8-PeCDF	2000	5.017	0	**K**	40-135	1.90	1.136
13C-2,3,4,7,8-PeCDF	2000	2.058	0	**K**	40-135	1.26	1.167
13C-1,2,3,4,7,8-HxCDF	2000	4.835	0	**K**	40-135	0.39	0.972
13C-1,2,3,6,7,8-HxCDF	2000	4.326	0	**Y**	40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	22.191	1	**Y**	40-135	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	3.530	0	**K**	40-135	0.64	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	4.662	0	**Y**	40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	12.341	1	**Y**	40-135	0.42	1.079
37Cl-2,3,7,8-TCDD	800	10.915	1	**Y**	40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	ng/Kg
Lab Code:	E1401160-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.99	4.99	1	1	
1,2,3,7,8-PeCDD	ND	13.4	13.4	1	1	
1,2,3,4,7,8-HxCDD	ND	21.3	21.3	1	0.1	
1,2,3,6,7,8-HxCDD	ND	20.5	20.5	1	0.1	
1,2,3,7,8,9-HxCDD	**52.1**	19.4	19.4	1	0.1	5.21
1,2,3,4,6,7,8-HpCDD	**41.0**	4.11	4.11	1	0.01	0.410
OCDD	**1370**	4.87	6.10	1	0.0003	0.411
2,3,7,8-TCDF	ND	38.5	38.5	1	0.1	
1,2,3,7,8-PeCDF	ND	19.2	19.2	1	0.03	
2,3,4,7,8-PeCDF	**46.8**	38.9	38.9	1	0.3	14.0
1,2,3,4,7,8-HxCDF	**26.6**	16.0	16.0	1	0.1	2.66
1,2,3,6,7,8-HxCDF	**26.2**	18.6	18.6	1	0.1	2.62
1,2,3,7,8,9-HxCDF	**9.70**	4.07	4.07	1	0.1	0.970
2,3,4,6,7,8-HxCDF	**32.2**	22.8	22.8	1	0.1	3.22
1,2,3,4,6,7,8-HpCDF	**41.7**	26.4	26.4	1	0.01	0.417
1,2,3,4,7,8,9-HpCDF	**32.3**	11.6	11.6	1	0.01	0.323
OCDF	**19.7**	4.80	6.10	1	0.0003	0.00591
		Total TEQ				30.2

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Dynamac Corporation	**Service Request:**	E1401160
Project:	Start Region VI / SBA Shipyard/S109-22H	**Date Collected:**	09/17/14 00:00
Sample Matrix:	Solid Waste	**Date Received:**	09/19/14 10:30
Sample Name:	SBA-ESI-15	**Units:**	Percent
Lab Code:	E1401160-002	**Basis:**	As Received

Total Solids Run Create

Analysis Method:	ALS SOP	**Date Analyzed:**	09/30/14 11:19
	6.289g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.3		-	1